

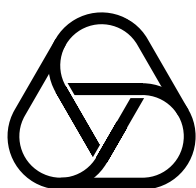
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Jahresbericht Annual Report

2025





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Jahresbericht
Annual Report

2025



Gerhard Huisken

Vorwort des Direktors

Das Jahr 2025 brachte dem MFO vor allem politische Herausforderungen. Kriege und Visa-beschränkungen hindern vermehrt Wissenschaftler daran, Einladungen nach Oberwolfach wahrzunehmen. Politische Verwerfungen im Ausland und Regeln der Exportkontrolle erschweren den direkten persönlichen Kontakt. Das MFO wird weiterhin alles daran setzen, den internationalen wissenschaftlichen Austausch mit Wissenschaftlern aus aller Welt in Oberwolfach zu ermöglichen.

Der Jahreskalender des Instituts war 2025 erneut prall gefüllt. In 50 Wochen fanden rund 65 einwöchige Veranstaltungen statt, darunter 41 Workshops, 14 Miniworkshops, drei Arbeitsgemeinschaften und sechs Oberwolfach Seminare. Hinzu kamen 40 längerfristige Forschungsaufenthalte kleinerer Gruppen und Einzelpersonen. Die Anzahl der Anträge überstieg unsere Kapazitäten bei Weitem. Von der hohen Qualität des Jahresprogramms können Sie sich auf den folgenden Seiten selbst überzeugen.

Für die Auswahl dieser Aktivitäten ist die ehrenamtliche Arbeit der Wissenschaftlichen Kommission der Gesellschaft für Mathematische Forschung (GMF) von grundlegender Bedeutung. Allen Mitgliedern der Kommission danke ich sehr herzlich für ihren unermüdlichen Einsatz und die damit gewährleistete Verankerung des MFO in der mathematischen Community.

Director's foreword

The past year 2025 brought major political challenges to the MFO. An increasing number of scientists was prevented by war and visa issues to accept invitations to Oberwolfach. Political decisions abroad and rules of export control at home threaten the free international exchange between scientists. The MFO will continue to make every possible effort to enable mathematicians from all over the world to meet in Oberwolfach.

The Institute's annual calendar was once again fully packed in 2025. Over the course of 50 weeks, approximately 65 one-week activities took place, including 41 Workshops, 14 Mini-Workshops, three study groups, and six Oberwolfach Seminars. In addition, there were 40 longer-term research stays by small groups and individuals. The number of applications far exceeded our capacity. You can see for yourself the high quality of the annual program on the following pages.

The volunteer work of the Scientific Committee of the Society for Mathematical Research (GMF) is of fundamental importance in selecting these activities. I would like to extend my heartfelt thanks to all members of the Committee for their tireless dedication and for ensuring that the MFO remains firmly rooted in the mathematical community.

Den Vorsitz der GMF hatte seit 2014 Friedrich Götze inne. Begleitet wurde er von Felix Otto als stellvertretendem Vorsitzenden und Vorsitzendem der Wissenschaftlichen Kommission (seit 2017) sowie von Joachim Schwermer als Schatzmeister (seit 2014). Ihnen allen gilt am Ende ihrer Amtszeit mein großer Dank für die Zeit, die Expertise und das außerordentliche Engagement, das sie in den Dienst des Instituts gestellt haben. Nun freue ich mich auf die Zusammenarbeit mit dem neuen Vorsitzenden der GMF, Rupert Klein, Schatzmeister Daniel Huybrechts und stellvertretendem Vorsitzenden Martin Hairer, der von der Wissenschaftlichen Kommission zu ihrem neuen Vorsitzenden gewählt worden war. Ihnen allen danke ich sehr herzlich für ihre Bereitschaft, diese Ehrenämter zu übernehmen.

Mein Dank geht außerdem an Alessio Figalli, der im Rahmen der Mitgliederversammlung der GMF 2025 die traditionelle Oberwolfach Vorlesung gehalten hat. Den Link zum Nachhören finden Sie im Innern dieses Berichts.

Mit großer Trauer haben wir im vergangenen Jahr vom Tod mehrerer Mitglieder der GMF erfahren: Günter Harder, Otto Kegel, Klaus Krickeberg, Gérard Laumon und Dietmar Salamon. In den Nachrufen würdigen wir ihr wissenschaftliches Lebenswerk und ihr Engagement für Oberwolfach. Ebenfalls gedenken wir Alan Huckleberry, der sich viele Jahre mit großem Einsatz im Stiftungsrat der Oberwolfach Stiftung eingebracht hat.

Die Oberwolfach Stiftung und ebenso der Förderverein helfen dem Institut durch zusätzliche finanzielle Mittel für besondere Projekte in den Bereichen Ausstattung und Gebäude, für die Bibliothek und insbesondere für die Förderung des wissenschaftlichen Nachwuchses. Weitere Drittmittel erhält das MFO von der Carl Friedrich von Siemens Stiftung, der National Science Foundation der USA und der Simons Foundation, während der Hauptteil der Haushaltsmittel auf Basis der Zugehörigkeit zur Leibniz-Gemeinschaft von Bund und Ländern bereitgestellt wird. Für diese verlässliche finanzielle Grundlage sind wir ebenso dankbar wie für die konstruktive Zusammenarbeit mit den zuständigen Vertretern im Verwaltungsrat. Mein Dank gilt zudem den Mitgliedern unseres Scientific Advisory Board, die die Entwicklung des Instituts mit ihrer unabhängigen Beratung und wertvollen Impulsen begleiten.

Dank der gemeinsamen Bemühungen der Simons Foundation, der Oberwolfach Stiftung und des Landes Baden-Württemberg konnte Mitte des Jahres der Spatenstich für den Anbau an

Friedrich Götze had served as chair of the GMF since 2014. He was supported by Felix Otto as vice chair and chair of the Scientific Committee (since 2017), as well as by Joachim Schwermer as treasurer (since 2014). At the end of their terms I would like to express my sincere gratitude to all of them for the time, expertise, and extraordinary dedication they have devoted to the Institute. Now I am looking forward to the cooperation with the new chair of the GMF, Rupert Klein, the new treasurer, Daniel Huybrechts, and the new vice chair Martin Hairer, who was elected by the Scientific Committee as its new chair. Many thanks to all of them for their willingness to take on these honorary posts.

I would also like to thank Alessio Figalli, who delivered the traditional Oberwolfach Lecture at the 2025 GMF General Assembly. You will find a link to listen to the lecture inside this report.

It was with great sadness that we learned last year of the passing of several members of the GMF: Günter Harder, Otto Kegel, Klaus Krickeberg, Gérard Laumon, and Dietmar Salamon. In the obituaries, we honor their scientific life's work and their dedication to Oberwolfach. We also remember Alan Huckleberry, who served on the Oberwolfach Foundation Board for many years with great dedication.

The Oberwolfach Foundation and the Friends of Oberwolfach support the Institute by providing additional funding for special projects related to equipment and facilities, the library, and, in particular, the promotion of early-career researchers. The MFO receives additional third-party funding from the Carl Friedrich von Siemens Foundation, the U.S. National Science Foundation, and the Simons Foundation, while the bulk of its budget is provided by the federal and state governments through its membership in the Leibniz Association. We are just as grateful for this solid financial foundation as we are for the constructive collaboration with the relevant representatives in the Administrative Council. I would also like to thank the members of our Scientific Advisory Board, who support the Institute's development with their independent advice and valuable insights.

Thanks to the joint efforts of the Simons Foundation, the Oberwolfach Foundation, and the State of Baden-Württemberg, the groundbreaking for the extension to our dining hall took place in the

unseren Speisesaal erfolgen. Gegen Ende des Jahres war der Rohbau bereits fertiggestellt und der Innenausbau in vollem Gange. Die Durchführung der Bauarbeiten im laufenden Betrieb war für alle Beteiligten herausfordernd. Umso bemerkenswerter ist es, dass die Forschungsaktivitäten in Oberwolfach mit nur minimalen Beeinträchtigungen fortgeführt werden konnten. Allen, die dazu beigetragen haben, danke ich sehr herzlich.

middle of the year. By the end of the year, the structural work had already been completed and interior construction was in full swing. Carrying out the construction work while operations continued was a challenge for everyone involved. This makes it all the more remarkable that research activities in Oberwolfach were able to continue with only minimal disruption. I would like to extend my heartfelt thanks to everyone who contributed to this.

Richard Vunken

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1. Über das Institut

Auf einen Blick ...

Das Mathematische Forschungsinstitut Oberwolfach (MFO)

- organisiert und fördert mathematische Forschung,
- stärkt die internationale wissenschaftliche Zusammenarbeit,
- organisiert Fortbildungen in der Mathematik und ihren Grenzgebieten,
- und fördert den wissenschaftlichen Nachwuchs.

Das Institut ist Mitglied der Leibniz-Gemeinschaft und wird gemeinsam von Bund und Ländern finanziert.

Was wir tun ...

Das MFO bringt Forschende der Mathematik aus allen Teilen der Welt für einen kurzen, aber intensiven Zeitraum zusammen. Pro Jahr kommen mehr als 2500 Wissenschaftlerinnen und Wissenschaftler, die weltweit zu den führenden Köpfen in ihren Spezialgebieten zählen. Das Institut bietet für sie ideale Bedingungen, um gemeinsam zu forschen, aktuelle Entwicklungen zu diskutieren und neue Ideen zu entwickeln.

Das Programm umfasst hauptsächlich einwöchige Forschungsveranstaltungen für größere und mittlere Gruppen. Daneben gibt es längerfristige Forschungsaufenthalte für kleine Gruppen und Einzelpersonen. Einwöchige Fortbildungsveranstaltungen helfen dabei, sich unter Anleitung von Experten in neue, hoch spezialisierte Gebiete einzuarbeiten.

Wie wir arbeiten ...

Das Jahresprogramm wird in einem kompetitiven Verfahren nach streng wissenschaftlichen Kriterien ausgewählt. Forscherinnen und Forscher aus der ganzen Welt können Anträge für Veranstaltungen oder Forschungsaufenthalte einreichen. In der Regel übersteigt die Zahl der Anträge die Kapazität des MFO bei Weitem. Alle Anträge werden von einer wissenschaftlichen Kommission begutachtet. Dieser Kommission gehören circa 20–25 international herausragende Mathematiker und Mathematikerinnen an, welche die gesamte Breite der Mathematik vertreten. Auf der Grundlage ihrer Begutachtung wird das Jahresprogramm festgelegt.

1. About the Institute

At a glance ...

The Mathematisches Forschungsinstitut Oberwolfach (MFO, Oberwolfach Research Institute for Mathematics)

- organizes and promotes mathematical research,
- intensifies international scientific collaboration,
- organizes training activities in mathematics and related areas,
- and promotes early career scientists.

The Institute is a member of the Leibniz Association and is funded jointly by the German federal government and the state governments.

What we do ...

The MFO brings researchers in mathematics from all parts of the world together for a short but intense period. Each year more than 2500 scientists – leading experts in their field – meet at the Institute which provides them with ideal conditions under which to pursue collaborative research, discuss recent developments and to generate new ideas.

The program mainly includes one-week research meetings for large and medium-sized groups. There are also longer-term research stays for small groups and individuals. One-week training events help to quickly immerse yourself with new, highly specialized areas under the guidance of experts.

How we work ...

The annual schedule is chosen in a competitive procedure according to strictly scientific criteria. Researchers from all over the world can submit proposals for scientific events or research stays. The number of proposals usually far exceeds the capacity of the MFO. All proposals are reviewed by a scientific committee. This committee is made up of around 20–25 internationally outstanding mathematicians who together represent the entire spectrum of mathematics. The annual schedule is decided on the basis of their assessment.

2. Neuigkeiten

2.1. Oberwolfach Vorlesung 2025

"Free Boundary Regularity in Obstacle Problems"

Prof. Dr. Alessio Figalli (ETH Zürich) hielt in diesem Jahr die traditionelle Oberwolfach Vorlesung. Sie findet jedes Jahr im Oktober im Rahmen der Mitgliederversammlung der Gesellschaft für Mathematische Forschung statt. Ein herzliches Dankeschön für den spannenden Vortrag! Eine Videoaufnahme ist auf der Webseite des Instituts verfügbar.



<https://www.mfo.de/outreach-media/oberwolfach-lectures>



Alessio Figalli

2. News

2.1. Oberwolfach Lecture 2025

"Free Boundary Regularity in Obstacle Problems"

Prof. Dr. Alessio Figalli (ETH Zurich) gave this year's traditional Oberwolfach Lecture. It takes place every year in October as part of the general meeting of the Gesellschaft für Mathematische Forschung (Society for Mathematical Research). Many thanks for the exciting lecture! A video recording is available on the Institute's website.



Alessio Figalli, Gerhard Huiskens

2.2. Baubeginn der neuen Cafeteria

Die Arbeiten zur Erweiterung des Speisesaals und zum Bau einer neuen Cafeteria begannen im Juni 2025. Durch den Anbau entsteht zusätzlicher Platz, sodass wir künftig ein Buffet anbieten können. Auf diese Weise können wir den vielfältigen Ernährungsbedürfnissen unserer Gäste besser gerecht werden.

2.2. Construction of cafeteria started

Construction work to expand the dining hall and build a new cafeteria began in June 2025. The extension provides additional space, allowing us to offer a buffet. This enables us to cater more effectively for the diverse dietary requirements of our guests.



2.3. Nachrufe / Obituaries

Günter Harder (1938 – 2025)

„Galoiskohomologie globaler Matrizengruppen“, mit diesem Titel hielt der 26-jährige Günter Harder im Oktober 1964 im Rahmen der Tagung „Zahlentheorie“ seinen ersten Vortrag im Mathematischen Forschungsinstitut Oberwolfach (MFO). Acht Monate nach seiner Promotion in Hamburg war dies der erste einer Vielzahl von Besuchen Harders am MFO als Teilnehmer, Organisator von Tagungen und Mitglied der wissenschaftlichen Kommission. Mehrere Jahre lang war er, zusammen mit W. Geyer, Leiter der je eine Woche im Frühjahr und Herbst stattfindenden Arbeitsgemeinschaft, kurz die Geyer-Harder AG genannt. Mit wechselnden aktuellen Themen der theoretischen Mathematik führte sie junge Wissenschaftler in neue mathematische Entwicklungen und öffnete so auch den Blick auf das internationale mathematische Geschehen.

Günter Harder, geboren am 14. März 1938 in Ratzeburg, Schleswig-Holstein, legte dort im Februar 1958 die Reifeprüfung an der Lauenburgischen Gelehrtenschule ab. Das Studium der Mathematik und Physik in Hamburg, unterbrochen von drei Semestern in Göttingen, schloss sich an. Kurz nach dem Staatsexamen wurde er im Februar 1964 in Hamburg bei Ernst Witt mit der Arbeit „Über die Galoiskohomologie der Tori“ promoviert. Nach zweijähriger Zeit als wissenschaftlicher Assistent habilitierte sich Harder im Sommersemester 1966. Das akademische Jahr 1966/67 verbrachte er am Institute for Advanced Study, Princeton, bevor er eine Stelle als wissenschaftlicher Rat an der Universität Heidelberg innehatte.



*Günter Harder, 2014 in Oberwolfach
Photo: Gerd Fischer*

Mit dem Sommersemester 1969 nahm Günter Harder seine Tätigkeit als o. Professor der Mathematik an der Rheinischen Friedrich-Wilhelms-Universität in Bonn auf, wechselte zum Wintersemester 1974/75 an die Gesamthochschule Wuppertal, kehrte dann aber 1980 wieder nach Bonn zurück. Im Jahr 2003 wurde Harder emeritiert. Seit 1991 war er Mitglied des Max-Planck-Instituts für Mathematik, Bonn, er war einer der Direktoren im Zeitraum 1995 – 2006. Harder erhielt den Gottfried Wilhelm Leibniz-Preis 1987, und den Karl-Georg-Christian von Staudt-Preis im Jahr 2004. Er war Mitglied der Rheinisch-Westfälischen Akademie der Wissenschaften und der Nationalen Akademie der Wissenschaften Leopoldina.

G. Harder war ein inspirierender Lehrer und Wissenschaftler, dem weltweit große Anerkennung gezollt wurde und wird. Sein Hauptarbeitsgebiet war die Zahlentheorie, genauer, das Zusammenspiel zwischen der Arithmetik algebraischer Gruppen über globalen Körpern, der Theorie automorpher Formen und dem weiten Gebiet der speziellen Werte von L-Funktionen. Als wesentliche Komponenten spielten hier die Theorie Liescher Gruppen, Strukturtheorie algebraischer Gruppen, Darstellungstheorie derselben, Kohomologietheorien jedweder Art, arithmetische algebraische Geometrie und differentialgeometrische Fragen hinein. Damit sind, über den Kanon der Anfangsvorlesungen hinaus, auch Themen seiner Lehrveranstaltungen umrissen.

In der Forschung hat Harder sich grundlegenden Fragestellungen in der Zahlentheorie, Algebra und algebraischen Geometrie gewidmet, mit Mut, unermüdlichem Fleiss und Begeisterung. In seinem mathematischen Werk verbinden sich neueste Methoden, Ideen und Ansätze auf natürliche Weise mit klassischen Fragestellungen. Er besaß die Fähigkeit, in Bereichen mit reicher Struktur die relevanten Aspekte zu erkennen und diese dann mit Elan zu verfolgen. Seine Ergebnisse wurden international hoch geachtet, seine verbindenden Einsichten über verschiedene Teilgebiete hinweg wurden aufgenommen und bestimmten entscheidend den internationalen Stand der Forschung einer ganzen Disziplin mit. Seine Einladungen zu den Internationalen Kongressen der Mathematik in Nizza 1970 und Kyoto 1990 sowie mehrere Gastaufenthalte an Forschungsinstituten und Universitäten belegen die Wertschätzung.

Harders frühe Arbeiten zur Galoiskohomologie halbeinfacher Matrizengruppen, in denen er der Gültigkeit des Lokal-Global Prinzips nachging und zur Klassifikation der Formen algebraischer Gruppen entscheidend beitrug, sind wegen ihres signifikanten Einflusses in starker Erinnerung. Gleichzeitig etablierte er hier Galoiskohomologie als probates methodisches Werkzeug.

In seiner Arbeit „Chevalley groups over function fields and automorphic forms“ (Annals of Mathematics, 1974) kann man ablesen, wie sich Fragen der Arithmetik algebraischer Gruppen und die Theorie automorpher Formen verschränken; die analytischen Seiten der Theorie der Eisensteinreihen gehen unmittelbar in die Beweismethodik des Lokal-Global Prinzips für Chevalley-Gruppen über Funktionenkörpern ein.

Zusammen mit M. S. Narasimhan entwickelte Harder Mitte der siebziger Jahre eine nun klassische Methode der algebraischen Geometrie, mittels der man eine kanonische Filtrierung eines Vektorbündels über einer algebraischen Kurve gewinnt, deren sukzessive Quotienten semistabile Vektorbündel mit strikt absteigender Steigung sind. Der Formalismus dieser Filtrierung wurde erfolgreich in unterschiedlichen mathematischen Kontexten erweitert und genutzt.

Harders spätere Arbeiten, die die Kohomologie arithmetischer Gruppen und zugehöriger Varietäten betreffen, brachten entscheidende grundlegende Erkenntnisse, etwa eine neue Form der Reduktionstheorie, anknüpfend an H. Minkowski, oder die Gauss-Bonnet Formel im Zahlkörperfall. Entsprechend einer Aktion einer Hecke-Algebra auf der Kohomologie zerlegen sich diese Kohomologiegruppen in unzerlegbare Anteile. Diese sind, durch ihren engen Zusammenhang mit der Theorie der automorphen Formen, von grossem Interesse in der Zahlentheorie und arithmetischen Geometrie. Harders Untersuchungen derjenigen Anteile, die durch Eisensteinreihen beschrieben werden können, haben zu sehr interessanten Anwendungen geführt, etwa zu Rationalitäts- oder Algebraizitätsaussagen von speziellen Werten [bis auf eine wohl gewählte Periode] von L -Funktionen. Dieses Forschungsprogramm, von Harder selbst „the Eisenstein cohomology program“ genannt, hat Günter Harder die letzten Jahre beschäftigt.

Harder bezeugte durch viele Aktivitäten sein tiefes Engagement für die Belange des MFO, insbesondere durch seine Teilhabe vor Ort am gegenwärtigen Geschehen und persönlichen Austausch in der Mathematik. Gerade hier konnte man das ihm innewohnende Mitdenken der wissenschaftlichen Interessen des Nachwuchses, weit über den Kreis seiner Studierenden und Graduierten hinaus, erfahren. Günter Harder war ein Mathematiker von ganzem Herzen, voller Energie und Tatkraft. Er war ein geschätzter Kollege, inspirierender akademischer Lehrer und überragender Wissenschaftler.

Joachim Schwermer
Schatzmeister der GMF 2014–2024

Alan Huckleberry (1941 – 2025)

Am 30. September 2025 verstarb Professor Dr. Dr. h.c. mult. Alan T. Huckleberry. Alan Huckleberry war langjähriger Koordinator des Horst Tietz Fonds innerhalb der Oberwolfach Stiftung. Dieser Fonds war insbesondere bis vor einigen Jahren – in Zusammenarbeit mit der Preuss Foundation – für die Abwicklung von Spenden aus den USA zuständig.

Alan Huckleberry wurde 1969 in Stanford promoviert. Er lehrte einige Jahre an der University of Notre Dame, bevor er 1980 auf einen Lehrstuhl an der Ruhruniversität Bochum berufen wurde. Nach seiner Emeritierung 2009 war er an der Jacobs University in Bremen tätig.

Huckleberrys Arbeitsgebiet war die komplexe Analysis, insbesondere arbeitete er über Gruppenwirkungen und Symmetrien. Darüber hinaus forschte er über Themen der symplektischen Geometrie und Anwendungen in der theoretischen Physik. Seine herausragenden wissenschaftlichen Leistungen wurden u.a. durch Ehrendoktorate in Nancy und Lille gewürdigt.

Alan Huckleberry war ein begeisterter akademischer Lehrer. Er betreute zahlreiche Promotionen; viele seiner Schüler haben selbst in der Wissenschaft bedeutende Beiträge geliefert.

Die Oberwolfach Stiftung, das Mathematische Forschungsinstitut Oberwolfach und die mathematische Gemeinschaft trauern um eine herausragende Persönlichkeit, die sich um die mathematische Wissenschaft und insbesondere das Mathematische Forschungsinstitut Oberwolfach verdient gemacht hat.

Thomas Peternell
Vorsitzender der Oberwolfach Stiftung



Alan Huckleberry, 2010 in Oberwolfach

Otto Kegel (1934 – 2025)

Am 20. Juli 2025, seinem 91. Geburtstag, starb Otto H. Kegel in Freiburg/Breisgau. Er war ein bedeutender Gruppentheoretiker.

Otto H. Kegel studierte in Frankfurt/Main und Paris. 1961 promovierte er bei Reinhold Baer an der Universität Frankfurt und war dort bis zu seiner Habilitation 1966 wissenschaftlicher Assistent. In dieser Zeit nahm er auch eine Reihe von Gastprofessuren wahr, z.B. in Chicago, Sydney und Las Cruces/New Mexico. 1968 wechselte er an das Queen Mary College der University of London, zunächst als Reader, ab 1970 als Professor of Pure Mathematics. 1975 folgte Otto H. Kegel einem Ruf auf eine ordentliche Professur an der Universität Freiburg, wo er bis zu seiner Emeritierung 1999 wirkte.

Otto H. Kegel hat wichtige Ergebnisse in verschiedenen Bereichen der Gruppentheorie (und darüber hinaus) veröffentlicht. Auf dem Gebiet der endlichen Gruppen betreffen sie vor allem Faktorisierungen und Normalstruktur. Ein besonderer Schwerpunkt seiner wissenschaftlichen Arbeit ist die Theorie der lokal endlichen Gruppen. Hier hat er wegweisende Resultate über lokal endliche Gruppen mit Minimalbedingungen verschiedener Art, über Sylow-Theorie und zur Klassifikation linearer lokal endlicher einfacher Gruppen erzielt. Sein gemeinsam mit Bertram Wehrfritz 1973 erschienenes Buch ‚Locally Finite Groups‘, das zu einem Standardwerk wurde, enthält viele vorher nicht publizierte eigene Resultate und machte zudem kaum rezipierte Arbeiten sowjetischer Autoren, die nur auf Russisch erschienen waren, im Westen bekannt. Schließlich sind seine von der Modelltheorie beeinflussten Arbeiten über existenziell abgeschlossene Gruppen zu nennen, ein Gebiet, auf dem er mit Koautoren noch bis wenige Jahre vor seinem Tod publizierte. Hier zeigt sich auch besonders seine Virtuosität in der Konstruktion unendlicher Gruppen mit vorgegebenen Eigenschaften.

Otto H. Kegel hatte ein breites, nicht nur mathematisches, Wissen und Interesse. Diesen Blick über den Tellerrand hinaus vermittelte er auch seinen Studierenden, für die er immer eine offene Tür hatte. Und eine offene Tür hatte er auch für eine Vielzahl von Gästen an seinem Lehrstuhl, die dann zudem die legendäre Gastfreundschaft im Hause Kegel erlebten. Er knüpfte und pflegte Kontakte zu Mathematiker/innen in aller Welt. Dabei unterstützte er auch viele, deren Arbeitsbedingungen in ihren Heimatländern sehr eingeschränkt waren, durch die Ermöglichung von Gastaufenthalten in Freiburg.



Otto H. Kegel,
2010 in Oberwolfach

Für Otto H. Kegel war das Engagement für die Mathematik als Ganzes stets ein wichtiges Anliegen. Er war Mitherausgeber verschiedener Zeitschriften, organisierte Tagungsreihen und förderte die grenzüberschreitende Zusammenarbeit Mathematischer Institute, etwa in der Oberrheinregion im Rahmen von EUCOR – The European Campus.

Dem Mathematischen Forschungsinstitut Oberwolfach war Otto H. Kegel eng verbunden. Dokumentiert sind Teilnahmen an 78 Tagungen, davon an 13 als Tagungsleiter. Er war Mitglied der Gesellschaft für Mathematische Forschung und von 1984 bis 1996 Mitglied des wissenschaftlichen Beirats, der heutigen wissenschaftlichen Kommission. Als stellvertretender Direktor übernahm er zwischen 1992 und 1994 die Aufgaben des damaligen Direktors Martin Barner, der schwer erkrankt war.

Die Mathematik, speziell die Gruppentheorie, verliert mit dem Tod von Otto H. Kegel eine prägende Persönlichkeit.

Peter Hauck
Eberhard-Karls-Universität Tübingen

Klaus Krickeberg (1929 – 2025)¹

On November 27, 2025, the distinguished mathematician and outstanding teacher Klaus Krickeberg passed away at the age of 96. His broad scientific interests concerned the fields of analysis, martingales, stochastic geometry and point processes, and moreover epidemiology and public health. To him mathematics was a reflection of reality, in which he developed gradually from the abstract to the concrete. Geometrical insight is visible in all his work.

Born in 1929 in Ludwigslust, Krickeberg grew up in a medically oriented family. His father was a radiologist and his mother a medical technical assistant. His intelligence became evident early on. After only three years of primary school he entered the College français in Berlin, a secondary school founded in 1689 for children of Huguenot refugees, among them his maternal ancestors.

Krickeberg completed his secondary education in 1946 and began university studies in autumn. The lectures of Erhard Schmidt impressed him deeply; later he described them as *the most wonderful lectures I ever heard, delivered entirely from memory*. Completing his studies in 1951, he earned his doctorate at twenty-three, and 1954 he completed his habilitation in Würzburg. By twenty-nine, he had become one of the youngest professors of his time: 1958 – 1971 Heidelberg; 1971 – 1975 Bielefeld; 1975 – 1998 Paris-V-René-Descartes.

His scientific work comprises in this first mathematical period the following fundamental contributions: convergence of martingales with a directed index set; distributions in the sense of Laurent Schwartz, functions of bounded variation and Lebesgue surface measure of a non-parametric

¹ An earlier version of this obituary was first published in IMS Bulletin, Vol. 55. No. 3 (2026).

surface, strong mixing properties of Markov chains with infinite invariant measure, invariance properties of the correlation measure of line processes; moments of point processes.

His mathematical teaching reached a wide audience by means of three books. But also by locally published surveys and notes, written for his lectures in Chile, Cuba, Poland or Vietnam – and always in the local language. They have been particularly influential, each of them recasting complicated and unarranged material in an accessible and elegant form, thereby setting clear lines for future research.



Klaus Krickeberg at a meeting of the Oberwolfach Committees in 2016. Photo: Gerd Fischer

From 1971 to 1985 he was chief editor of the Journal of Probability and Related Fields. In 1992 he initiated the book series Statistics for Biology and Health.

In 1974 he travelled by train to Vietnam to teach mathematics in Hanoi. After that, he returned year after year to support Vietnamese scientists. Over time, his commitment expanded beyond mathematics. In the final decades of his life, improving healthcare and health education in Vietnam became a central focus. He worked to strengthen epidemiological teaching, co-authored books with Vietnamese colleagues, gave lectures, and organized workshops.

Klaus Krickeberg became a Fellow of the Institute of Mathematical Sciences in 1968. He was elected into the International Statistical Institute (ISI) in 1971, was member of its Council 1985 – 1989 and chairman of its committee for the development of statistics in developing countries 1987 – 1991.

Between 1953 and 1999 he took part in 35 workshops of the Oberwolfach Research Institute for Mathematics, seven times as organizer.

He was president of the Bernoulli Society 1977 – 1979. He initiated the establishment of the Latin America Regional Committee (LARC) and the East-Asian and Pacific Regional Committee (EAPRC) and was chairman of the program committee of the first world congress of this society in Tashkent 1986. (In Bernoulli News, 29 (2), 9 – 10, he tells anecdotes about this congress.)

In 1983 he was elected into the German National Academy of Sciences Leopoldina. Klaus Krickeberg received an honorary doctorate from the Faculty of Social and Economic Sciences at the University of Vienna in 1990.

He was elected as a Fellow of the World Academy of Sciences for the advancement of science in developing countries (TWAS) in 1994.

He has received several distinctions for his activities in Vietnam. In the year 2009 it was the Medal of the Ministry of Health for Contributions to the Health of the Population. Then, in 2011 the National University of Sciences of Ho Chi Minh-City bestowed on him its "Honorary Doctor" degree for his work in mathematics, and in 2015 the Thai Binh University of Medicine and Pharmacy made him its "Honorary Professor". For his 90th birthday in 2019 he received the Friendship Order, the highest order bestowed by the Vietnamese government on foreign individuals by the President of Vietnam for "many positive essential contributions to the development of the Vietnamese health sector". (Bernoulli News, 26 (1), 5)

Klaus Dietz
Eberhard-Karls-Universität Tübingen

Hans Zessin
Universität Bielefeld

Gérard Laumon (1952 – 2025)

Gérard Laumon passed away on the 4th of October 2025, aged 73. After a secondary education at the Lycée du Parc in Lyon, he was a student of the École Normale Supérieure from 1972 to 1976. In 1973, he began to study algebraic geometry under the supervision of Luc Illusie, in the Département de Mathématique d’Orsay, where he would stay throughout his career, starting with a teaching position (“assistant”) in 1976, then with a CNRS research position, firstly as a *chargé de recherche* in 1985, and as *directeur de recherche* in 1989, emeritus since 2018.

He defended his *Thèse d’État*, prepared under the supervision of Luc Illusie, in June 1983. His first works were devoted to the study of the ramification of constructible sheaves on algebraic varieties, both in the framework of ℓ -adic sheaves in positive characteristic, and of $\mathcal{D}$ -modules in characteristic zero.



Gérard Laumon, 2024
Photo: Jean-Benoît Bost

Shortly afterwards, inspired by Witten’s new proof of Morse inequalities, Gérard Laumon established some spectacular new results, as geometric and arithmetic applications of a theory of “geometric Fourier transform” for ℓ -adic sheaves over an affine space — notably a product formula for the constant of the functional equation of L -functions attached to Galois representations for function fields over a finite field, and some new proof of the Weil conjectures and its generalized versions previously established by Deligne.

These results were published in the paper *Transformation de Fourier, constantes d’équations fonctionnelles et conjecture de Weil*,¹ which had a considerable influence on the study of the cohomology of algebraic varieties and their applications to automorphic representations. His work on *les constantes* would remain, for Gérard Laumon, his most cherished of a long series of landmark results and foundational contributions.

From the mid-eighties, under the influence notably of Deligne and Kazhdan and of the work of Drinfeld and Lusztig, Gérard Laumon started to investigate various aspects of the theory of automorphic representations, with a special emphasis on situations of positive characteristic. Thanks to his expertise in algebraic geometry, concerning notably ℓ -adic sheaves and the cohomology of varieties over finite fields, Gérard Laumon could bring deep geometric insights into the fascinating web of arithmetic and geometric conjectures referred to as the Langlands program.

These insights have been incredibly influential. First of all, through his own seminal contributions: for instance, Laumon’s paper *Correspondance de Langlands géométrique pour les corps de fonctions*² is the starting point of the so-called geometric Langlands program, which has recently met tremendous successes. Also since these insights have allowed him and his collaborators to establish some important instances of the Langlands conjectures (over fields of positive characteristic; notably the local Langlands correspondence for the group GL_n over a local field of positive characteristic³). And finally, because Gérard Laumon has been able to successfully pass on to his own doctoral students the geometric perspectives that he so brilliantly developed in his own research papers.

Arguably, the main contribution of this line of thoughts to the whole Langlands program has been the proof of the so-called *Fundamental Lemma*, firstly by Ngô Bao Châu and Gérard Laumon for unitary groups, then by Ngô Bao Châu in the “general case” — for which Ngô Bao Châu was awarded the Fields Medal in 2010 — and later of its extensions (weighted fundamental lemma) by Pierre-Henri Chaudouard and Gérard Laumon.

1 Published as *Publ. Math. Inst. Hautes Études Sci.*, 65 (1987), 131–210.

2 See *Duke Math. J.* 54 (1987), 309–359.

3 In collaboration with Rapoport and Stuhler. See: *$\mathcal{D}$ -elliptic sheaves and the Langlands correspondence*. *Invent. Math.* 113 (1993), 217–338.

Gérard Laumon was an astonishingly complete, verging on the paradox, mathematical character: his research works combined breathtaking solo explorations and long-term fruitful collaborations, brilliant insights and patient foundational works, crisp and bright research papers and detailed research monographs.

This did reflect his own personality: behind unassuming and almost self-deprecating manners, he had an impressive discipline of work, and the ability to understand the concerns of colleagues and friends of quite diverse ages and professional status, and to advise them helpfully. In brief, he took mathematics extremely seriously, but himself not seriously *at all*, and actually could be quite sarcastic when confronted with colleagues who did not share this approach of themselves.

The outstanding personality of Gérard Laumon constituted the background of his exceptional talent and success as a thesis advisor: he had the capacity of counseling young colleagues so that they develop the best of their mathematical abilities, and eventually reach the most coveted distinctions. It also made him appreciated in diverse hiring and scientific committees, where, beyond his mathematical expertise, his attention to the human sides of the decisions to be taken, and his well-thought-of and neatly formulated advices, were always extremely helpful.

Gérard Laumon had a special fondness for the MFO, where he took part in twelve conferences devoted to algebraic and arithmetic geometry and to automorphic forms between 1983 and 2021, and that he also visited several times as a spouse, when accompanying his wife Geneviève Raugel, also a mathematician, specialist of partial differential equations and infinite-dimensional dynamical systems, from whom he was inseparable until her untimely death in 2019.

To my eyes, his attachment to the MFO is explained by its tradition of combining an extreme care to the scientific quality of the conferences to an unassuming and comfortable way-of-life, which did fit nicely his own personality, and by his personal relations with members of the German mathematical community, notably with his joint author Michael Rapoport, who together with his wife Ingrid, have been lifelong friends of Gérard Laumon and Geneviève Raugel.

After a long series of services to the community of mathematicians, notably as chairman or member of diverse editorial boards, Gérard Laumon was pleased to become a member of the Scientific Committee of the MFO (and consequently of the Gesellschaft für Mathematische Forschung) in 2010 and to serve it till the end of 2017.

Jean-Benoît Bost
Université Paris-Saclay

Dietmar Salamon (1953 – 2025)

Dietmar Salamon starb am 4. November 2025 unerwartet im Alter von 72 Jahren in Zürich. Mit ihm verliert die mathematische Gemeinschaft einen herausragenden Forscher von internationalem Rang. Er war Mitbegründer der symplektischen Topologie und ein Pionier in der Entwicklung der Floer-Theorie.

Dietmar Salamon wurde am 7. März 1953 in Bremen geboren. Er studierte Mathematik an der Leibniz Universität Hannover und promovierte 1982 an der Universität Bremen im Gebiet der Kontrolltheorie. Forschungsaufenthalte an der University of Wisconsin–Madison und am Forschungsinstitut für Mathematik der ETH Zürich prägten seine wissenschaftliche Entwicklung nachhaltig und legten den Grundstein für seine außerordentliche fachliche Breite.

Nach Forschungs- und Lehrtätigkeiten an der University of Warwick folgte er 1998 einem Ruf an die ETH Zürich, an der er bis zu seiner Emeritierung im Jahr 2020 als Professor für Mathematik wirkte.

Sein wissenschaftliches Werk umfasst grundlegende Beiträge zur Kontrolltheorie, zur Conley-Theorie, zur KAM-Theorie und zur Globalen Analysis. Um 1990 verlagerte sich sein Interesse zunehmend auf die symplektische Geometrie, und er spielte eine entscheidende Rolle bei der Entwicklung und Weiterentwicklung der Floer-Homologie. Er kollaborierte unter anderem mit Andreas Floer, Helmut

Hofer, Dusa McDuff, Joel Robbin und Eduard Zehnder. Die gemeinsam mit Dusa McDuff verfassten Werke über symplektische Geometrie und Topologie gehören heute zu den maßgeblichen Referenzen des Fachgebiets.

Die internationale mathematische Gemeinschaft würdigte Salamons Leistungen durch zahlreiche Einladungen zu Vorträgen und Forschungsaufenthalten an führenden Institutionen weltweit. Hervorzuheben ist insbesondere seine Einladung als Sprecher zum International Congress of Mathematicians (ICM) 1994 in Zürich – eine der höchsten Auszeichnungen im mathematischen Leben. Über viele Jahre war er außerdem Mitglied des wissenschaftlichen Beirats des Mathematischen Forschungsinstituts Oberwolfach (2001–2008), wo er aktiv an der Gestaltung des Forschungsprogramms mitwirkte und regelmäßig an Tagungen teilnahm.

Als Lehrer und Mentor war er außerordentlich geschätzt. Das Mathematics Genealogy Project verzeichnet mehr als 20 von ihm betreute Doktorandinnen und Doktoranden sowie über 50 akademische „Nachkommen“, von denen viele inzwischen international anerkannte Wissenschaftlerinnen und Wissenschaftler sind.

Für seine wissenschaftliche Tätigkeit wurde er 2011 als Mitglied der Academia Europaea gewählt und 2012 als *Fellow of the American Mathematical Society* ausgezeichnet. Im Jahr 2017 erhielten Dietmar Salamon und Dusa McDuff gemeinsam den *Leroy P. Steele Prize for Mathematical Exposition*.



*Dietmar Salamon, 2006 in Oberwolfach
Photo: Gerd Fischer*

Auch nach seiner Emeritierung blieb Salamon der mathematischen Gemeinschaft eng verbunden. Er beteiligte sich weiterhin an Seminaren, Workshops und langfristigen Forschungsprogrammen und war ein geschätztes Mitglied verschiedener akademischer Kommissionen.

Die mathematische Gemeinschaft wird Dietmar Salamon für seine grundlegenden Beiträge zur symplektischen Geometrie, seine Klarheit und Tiefe in der mathematischen Darstellung sowie seine inspirierende Rolle als Lehrer und Mentor in dankbarer Erinnerung behalten.

Persönlich möchte ich hinzufügen, dass ich seine Freundschaft immer in herzlicher Erinnerung behalten werde. Ich werde niemals die Intensität unserer Zusammenarbeit und die Energie, die er in uns beiden freisetzen konnte, vergessen.

*Helmut Hofer
Institute for Advanced Study Princeton*

3. Wissenschaftliches Programm

Das wissenschaftliche Programm wird vom Direktor in Zusammenarbeit mit der wissenschaftlichen Kommission der Gesellschaft für Mathematische Forschung entschieden. Dieses Gremium basiert auf der ehrenamtlichen Arbeit von circa 20–25 hochkarätigen Mathematikern und Mathematikerinnen, welche die gesamte Breite der Mathematik vertreten. Die wissenschaftliche Kommission begutachtet alle wissenschaftlichen Veranstaltungen des Instituts vor ihrer Genehmigung. Das Programm wird in einem wettbewerblichen Verfahren nach streng wissenschaftlichen Kriterien gestaltet. Wie in den Vorjahren erhielt das MFO wesentlich mehr Anträge als genehmigt werden konnten.

3.1. Überblick der Aktivitäten

Die Aktivitäten des MFO gliedern sich in drei Teilbereiche: Kurzzeitige Forschungsveranstaltungen, längerfristige Forschungsaufenthalte und Fortbildungsveranstaltungen. Diese drei Bereiche sind in sechs zentralen wissenschaftlichen Programmen konkretisiert: Workshops und Mini-workshops, Oberwolfach Research Fellows und Oberwolfach Leibniz Fellows sowie Oberwolfach Arbeitsgemeinschaft und Oberwolfach Seminare.

Im Rahmen der sechs wissenschaftlichen Programme gibt es finanzielle Fördermöglichkeiten für den wissenschaftlichen Nachwuchs und etablierte Forscherinnen und Forscher. Einige dieser Fördermöglichkeiten werden durch Drittmittel finanziert.

In Zusammenarbeit mit der Oberwolfach Stiftung fördert das MFO darüber hinaus herausragende Forschungsleistungen von Mathematikern und Mathematikerinnen am Beginn ihrer Karriere durch die Verleihung des Oberwolfach Preises und des John Todd Awards.

Zur Sicherung und weiteren Verbreitung der Ergebnisse aus den Forschungs- und Fortbildungsaktivitäten pflegt das Institut vier Publikationsreihen mit unterschiedlichen Zielgruppen.

Kurzzeitige Forschungsveranstaltungen

Workshops. Der Hauptteil des Jahresprogramms besteht aus etwa 40 einwöchigen Workshops pro Jahr, an denen jeweils bis zu 48 Personen teilnehmen. Alternativ können zwei Workshops halber Größe parallel stattfinden. Die Workshops werden von international führenden

3. Scientific program

The Director of the Institute decides on the scientific program in cooperation with the Scientific Committee of the Gesellschaft für Mathematische Forschung. The Committee is based on the honorary work of about 20 to 25 top-class mathematicians, covering all areas of mathematics. The Scientific Committee examines all scientific events at the Institute prior to their approval. The program is fixed in a competitive procedure according to strictly scientific criteria. As in the preceding years, the MFO received many more proposals than could be approved.

3.1. Overview of activities

The activities of the MFO are organized in three subdivisions: short-term research meetings, longer-term research stays and training. These subdivisions are specified in six central scientific programs: Workshops and Mini-Workshops, Oberwolfach Research Fellows and Oberwolfach Leibniz Fellows, as well as Oberwolfach Arbeitsgemeinschaft and Oberwolfach Seminars.

Within these programs, there are special funding opportunities for early-career researchers and established researchers. Several of these grants are financed by third party funds.

In cooperation with the Oberwolfach Foundation, the MFO also promotes outstanding research achievements by early-career mathematicians by awarding the Oberwolfach Prize and the John Todd Award.

To document and further disseminate the results of its research and training activities, the Institute maintains four publication series with different target groups.

Short-term research meetings

Workshops. The main scientific program consists of about 40 week-long Workshops per year, each with up to 48 participants. Alternatively, there can be two parallel Workshops of half size (24 participants). The Workshops are organized by internationally leading experts in the relevant

Expertinnen und Experten der jeweiligen Fachgebiete organisiert. Teilnehmen kann nur, wer auf ihre Empfehlung hin vom Direktor persönlich eingeladen wurde. Das Ziel der Workshops ist es, gleichermaßen die jüngsten Entwicklungen in einem bestimmten Fachgebiet zu diskutieren und daran anknüpfend neue Forschungsaktivitäten anzustoßen.

Miniworkshops. Ergänzend zu den großen Workshops können an festgelegten Wochen im Jahr jeweils bis zu drei einwöchige Miniworkshops mit jeweils bis zu 16 Teilnehmenden parallel veranstaltet werden. Das Programm richtet sich besonders an den wissenschaftlichen Nachwuchs. Da über die Themen erst ein halbes Jahr im Voraus entschieden wird, ist es möglich, auf aktuelle Entwicklungen schnell zu reagieren.

Tandem-Workshops. Die Idee der Tandem-Workshops ist es, dass zwei Gruppen zu je 16–24 Personen an zwei, üblicherweise weit entfernten Orten über Videokonferenz miteinander interagieren. Vor Ort können sich die Teilnehmenden auf die übliche intensive, direkte Weise austauschen. Zusätzlich können Vorträge mit der Tandem-Gruppe geteilt und gemeinsame Diskussionsrunden veranstaltet werden.

Längerfristige Forschungsaufenthalte

Oberwolfach Research Fellows (OWRF). Dieses Programm ermöglicht es Gruppen von 2–4 Forschenden für einen Zeitraum von 1–4 Wochen an einem vorher festzulegenden Projekt gemeinsam zu arbeiten. Projekte aus allen Gebieten der Mathematik können gefördert werden.

Oberwolfach Leibniz Fellows (OWLF). Nachwuchsforschende können sich zusätzlich für eine Oberwolfach Leibniz Fellowship bewerben. Dies ermöglicht ihnen eine Aufenthaltsdauer von bis zu 3 Monaten, als Einzelperson oder als Teil einer OWRF-Gruppe, sowie eine finanzielle Förderung bis zur Höhe eines Postdoc-Gehalts.

Fortbildungsveranstaltungen

Oberwolfach Arbeitsgemeinschaft. Die Idee der Arbeitsgemeinschaft ist es, sich unter Anleitung international anerkannter Spezialisten durch eigene Vorträge in ein neues, aktuelles Gebiet einzuarbeiten. Die Arbeitsgemeinschaft findet dreimal jährlich für jeweils eine Woche statt. Sie richtet sich sowohl an den wissenschaftlichen Nachwuchs als auch an etablierte Forscherinnen und Forscher. Das Thema einer Arbeitsgemeinschaft wird im Gespräch mit den Teilnehmenden

fields. Participation is subject to a personal invitation by the Director after recommendation of the organizers. The aim of the Workshops is at the same time to discuss the latest developments in a specific subject area and, based on this, to initiate new research activities.

Mini-Workshops. In addition to the large Workshops, up to three one-week Mini-Workshops can be held in parallel on specific weeks of the year, each with up to 16 participants. The Mini-Workshops are aimed especially at early-career researchers. Since the subjects are fixed only half a year before the Mini-Workshops take place, they allow to react to very recent developments.

Tandem-Workshops. The concept behind the Tandem-Workshops is for two groups of 16–24 people each – located at two sites, usually far apart – to interact with one another via video conference. On site, participants can exchange ideas in the usual intensive, direct way. In addition, a number of lectures or discussion sessions can be shared with the tandem group.

Longer-term research stays

Oberwolfach Research Fellows (OWRF). The program enables groups of 2–4 researchers to work together on a previously defined project for a period of 1–4 weeks. Projects from all areas of mathematics can be supported.

Oberwolfach Leibniz Fellows (OLWF). Early-career researchers may additionally apply for an Oberwolfach Leibniz Fellowship. This enables them to stay for up to 3 months, as an individual or as part of an OWRF group, as well as financial support up to the amount of a postdoctoral salary.

Training activities

Oberwolfach Arbeitsgemeinschaft. The idea of the Oberwolfach Arbeitsgemeinschaft (study group) is to learn about a new active topic by giving a lecture on it, guided by leading international specialists. The Arbeitsgemeinschaft meets three times per year for one week each time. It is aimed both at established and early-career researchers. The topic of an Arbeitsgemeinschaft is chosen in discussion with participants of the previous meeting one year in

der Arbeitsgemeinschaft des Vorjahres festgelegt. Die Arbeitsgemeinschaft wird von Prof. Dr. Martin Hairer, Prof. Dr. Peter Scholze und Prof. Dr. Andreas Thom koordiniert.

Oberwolfach Seminare. Die Oberwolfach Seminare sind einwöchige Veranstaltungen, die sechsmal im Jahr stattfinden. Sie werden von führenden Experten der jeweiligen Fachgebiete organisiert und wenden sich an Promovierende und Postdoktoranden aus aller Welt. Das Ziel ist es, 24 Teilnehmerinnen und Teilnehmer in ein besonders aktuelles Arbeitsgebiet einzuführen.

Banach Center – Oberwolfach Graduate Seminare. In Ergänzung zu den sechs jährlichen Oberwolfach Seminaren starteten im Jahr 2019 die „Banach Center – Oberwolfach Graduate Seminars“. Sie werden in Zusammenarbeit mit dem Forschungsinstitut für Mathematik (Banach Center) der Polnischen Akademie der Wissenschaften (IMPAN) organisiert und finden im Konferenzzentrum Będlewo statt. Die Seminare richten sich an Promovierende und Postdoktoranden aus der ganzen Welt.

IMO Vorbereitungswoche. Das Institut beherbergt traditionell die abschließende Trainingswoche für besonders begabte Schülerinnen und Schüler zur Vorbereitung auf die Internationale Mathematik-Olympiade (IMO).

Finanzielle Fördermöglichkeiten

Oberwolfach Leibniz Graduate Students. Das MFO unterstützt die Teilnahme von im Durchschnitt fünf Oberwolfach Leibniz Graduate Students (OWLG) an den Oberwolfach Workshops. Gefördert werden exzellente Promovierende oder frisch Promovierte bis zu zwei Jahre nach der Promotion, insbesondere durch Reisekostenunterstützung. Es handelt sich um fünf zusätzliche Plätze pro Workshop, die für die OWLG reserviert sind und nicht durch etablierte Forscher besetzt werden dürfen.

US Junior Oberwolfach Fellows. Das MFO fördert die Teilnahme von herausragenden Nachwuchsforscherinnen und -forschern US-amerikanischer Universitäten in allen einwöchigen Programmen des Instituts. Diese Förderung ist möglich dank der Unterstützung der amerikanischen National Science Foundation (NSF).

Oberwolfach Foundation Fellows. Dieses Förderprogramm der Oberwolfach Stiftung erlaubt es dem MFO, eingeladene exzellente Nachwuchsforscherinnen- und -forscher bei ihren Reisekosten zu unterstützen. Das MFO kann durchschnittlich einer Person pro Woche bis zu

advance. The Arbeitsgemeinschaft is coordinated by Prof. Dr. Martin Hairer, Prof. Dr. Peter Scholze and Prof. Dr. Andreas Thom.

Oberwolfach Seminars. The Oberwolfach Seminars are week-long events taking place six times per year. They are organized by leading experts in the field and are meant for postdocs and Ph.D. students from all over the world. They aim at introducing 24 participants to a particularly hot development.

Banach Center – Oberwolfach Graduate Seminars. In addition to the six annual Oberwolfach Seminars, the “Banach Center – Oberwolfach Graduate Seminars” started in 2019. The seminars are organized in cooperation with the Institute of Mathematics (Banach Center) of the Polish Academy of Sciences (IMPAN) and take place at the conference center in Będlewo. They are aimed at doctoral candidates and postdocs from all around the world.

IMO training week. The Institute traditionally hosts the final training week for especially gifted pupils to prepare for the International Mathematical Olympiad (IMO).

Grants

Oberwolfach Leibniz Graduate Students. The MFO supports the participation of an average of five doctoral students per Oberwolfach Workshop. This program fosters excellent graduate students and recent postdocs (the Ph.D./Dr. degree must be received not more than two years ago), in particular by the reimbursement of travel costs. For this program, each Oberwolfach Workshop is given an extra capacity of five places which may not be taken by established researchers.

US Junior Oberwolfach Fellows. The MFO supports the participation of outstanding early career researchers from US universities in all weekly programs of the Institute. This is possible thanks to the support of the US National Science Foundation (NSF).

Oberwolfach Foundation Fellows. This grant financed by the Oberwolfach Foundation enables the MFO to support invited excellent early-career researchers with regard to their travel costs. It allows to reimburse travel expenses up to an amount of 1000 € for one early-career

1000 € der Reisekosten erstatten. Bewerber können sich alle eingeladenen Teilnehmerinnen und Teilnehmer, deren Promotion nicht länger als 10 Jahre zurückliegt, und die nachweislich von Orten mit unzureichender Unterstützung für den wissenschaftlichen Nachwuchs kommen.

Förderung der Oberwolfach Seminare. Die Carl Friedrich von Siemens Stiftung unterstützt die Oberwolfach Seminare seit 2008 mit einem substanziellen Beitrag. Dank dieser Unterstützung können Teilnehmende auf Antrag einen Zuschuss zu ihren Reisekosten erhalten.

Publikationen

Das MFO veröffentlicht vier Publikationsreihen und unterstützt dabei die Idee von Open Access. Mit Ausnahme der Buchreihe „Oberwolfach Seminars“ sind alle Veröffentlichungen elektronisch frei verfügbar.

Oberwolfach Reports. Um die Ergebnisse der Workshops einem international weiteren Kreis zugänglich zu machen wurde 2004 die Buchserie „Oberwolfach Reports“ (OWR) gegründet. In Zusammenarbeit mit EMS Press erscheint sie jährlich mit vier Ausgaben von insgesamt mehr als 3.000 Seiten als Print- und Onlineversion. Die OWR beinhalten erweiterte Kurzfassungen aller Vorträge der Workshops, Miniworkshops und Arbeitsgemeinschaften im Umfang von jeweils ein bis drei Seiten.

Oberwolfach Seminars. Diese Buchreihe entsteht in Zusammenarbeit mit dem Birkhäuser Programm des Springer Verlags (Basel) und macht den Inhalt der Oberwolfach Seminare für ein größeres Publikum zugänglich.

Oberwolfach Preprints. In den Oberwolfach Preprints (OWP) werden hauptsächlich Resultate von längerfristigen Forschungsaufenthalten (OWRF und OWLF) publiziert.

Schnappschüsse moderner Mathematik aus Oberwolfach. In den „Schnappschüssen“ werden aktuell diskutierte mathematische Ideen, Konzepte und Probleme für die mathematisch interessierte Öffentlichkeit zugänglich gemacht.

In Kapitel 3.10 sind sämtliche im Berichtsjahr erschienen Publikationen aufgelistet.

researcher on average in every week. Invited participants coming from places with insufficient support for early career researchers to the MFO, with Dr./Ph.D. not longer than 10 years ago, can apply.

Support of the Oberwolfach Seminars. The Carl Friedrich von Siemens Foundation has been supporting the Oberwolfach Seminars with a substantial contribution since 2008. Thanks to this support, participants can apply for a subsidy for their travel expenses.

Publications

The MFO has four distinct publication series and supports the idea of open access. Hence, all publications are freely available, with the exception of the book series “Oberwolfach Seminars”.

Oberwolfach Reports. The Oberwolfach Reports (OWR) were initiated in 2004 to make the results of the workshops accessible to an even broader international audience. In collaboration with EMS Press they appear quarterly as print and online edition. The four issues comprise more than 3,000 pages per year. The OWR contain extended abstracts of all given talks of every Workshop, Mini-Workshop and Arbeitsgemeinschaft, with one to three pages per talk.

Oberwolfach Seminars. This is a book series in collaboration with the Birkhäuser program of Springer (Basel). In this series, the material of the Oberwolfach Seminars is made available to an even larger audience.

Oberwolfach Preprints. The Oberwolfach Preprints mainly contain research results related to a longer stay in Oberwolfach (OWRF and OWLF).

Snapshots of modern mathematics from Oberwolfach. In the “snapshots”, currently discussed mathematical ideas, concepts and problems are made accessible to the mathematically interested public.

Chapter 3.10 lists all publications published in the reporting year.

Preise

Oberwolfach Preis. Der Oberwolfach Preis wird etwa alle drei Jahre von der Oberwolfach Stiftung in Kooperation mit dem MFO an exzellente Nachwuchsforscherinnen und -forscher verliehen. Der Preis ist für ausgezeichnete Errungenschaften in jeweils wechselnden Gebieten der Mathematik ausgelobt und mit 10.000 Euro dotiert. Die Auswahl aus den Nominierten trifft die wissenschaftliche Kommission der Gesellschaft für Mathematische Forschung.

John Todd Award. Das MFO verleiht ebenfalls etwa alle drei Jahre zusammen mit der Oberwolfach Stiftung den John Todd Award für Nachwuchsforscherinnen und -forscher auf dem Gebiet der numerischen Analysis. Der John Todd Award ist mit 1.000 Euro dotiert.

Teilnahme am Leibniz MMS Netzwerk

Als Mitglied der Leibniz-Gemeinschaft nimmt das MFO am Netzwerk „Mathematical Modelling and Simulation“ (MMS) teil. Das Thema spielt in vielen Aktivitäten des Instituts eine Rolle. Im Jahr 2025 fanden insgesamt 21 einwöchige Veranstaltungen statt, die verschiedene Aspekte dieses Forschungsfeldes aufgriffen.

3.2. Jahresprogramm 2025

Im Jahr 2025 wurden 41 Workshops während 39 Wochen, 14 Mini-Workshops während 5 Wochen, 3 Arbeitsgemeinschaften während 3 Wochen, 6 Oberwolfach Seminare während 3 Wochen und 2 weitere Fortbildungsveranstaltungen während 2 Wochen durchgeführt. Alle kurzzeitigen Veranstaltungen sind jeweils mit einer kurzen Beschreibung in den Kapiteln 3.3 – 3.7. dargestellt.

Im Programm Oberwolfach Research Fellows wurden 37 Projekte mit einem Forschungsaufenthalt am MFO gefördert. Drei Personen profitierten von einer Oberwolfach Leibniz Fellowship. Die Gruppen und Einzelpersonen aus den längerfristigen Programmen sind mit ihren Aufenthaltsdaten in den Kapiteln 3.8. und 3.9. aufgeführt.

Insgesamt nahmen ca. 2.600 Personen an allen Programmen des MFO teil, davon ca. 27% aus Deutschland, 41% aus anderen europäischen Ländern und 32% aus dem nicht-europäischen Ausland.

Die überwiegende Mehrheit der Forscherinnen und Forscher nahm vor Ort an den Programmen teil. Etwa 5% nahmen virtuell teil.

Prizes

Oberwolfach Prize. The Oberwolfach Prize is awarded by the Oberwolfach Foundation in cooperation with the MFO to excellent early career researchers. The prize is awarded for excellent achievements in changing fields of mathematics. It amounts to 10,000 Euro. The selection from the nominees is made by the Scientific Committee of the Gesellschaft für Mathematische Forschung.

John Todd Award. The Oberwolfach Foundation awards in cooperation with the MFO approximately every three years the John Todd Award to early career scientists in numerical analysis. The John Todd Award amounts to 1,000 Euro.

Participation in the Leibniz MMS Network

As a member of the Leibniz Association, the MFO participates in the Leibniz network “Mathematical Modelling and Simulation” (MMS). The topic is present in many activities at Oberwolfach. In 2025 a total of 21 week-long events which covered various aspects of the MMS area of research took place.

3.2. Annual schedule 2025

In the year 2025, 41 Workshops during 39 weeks, 14 Miniworkshops during 5 weeks, 3 Arbeitsgemeinschaften during 3 weeks, 6 Oberwolfach Seminars during 3 weeks and 2 further training activities during 2 weeks have taken place. All short-term events are presented with a short description in sections 3.3 – 3.7.

The Oberwolfach Research Fellows program supported 37 projects with a research stay at the MFO. Three individuals benefited from an Oberwolfach Leibniz Fellowship at the Institute. The groups and individuals from the longer-term programs are listed with their stay dates in chapters 3.8 and 3.9.

In total, around 2,600 persons attended the Oberwolfach programs, about 27% from Germany, 41% from other European countries, and 32% from non-European countries.

The majority of researchers participated on site. Around 5% participated online.

Das Institut legt großen Wert darauf, dass alle Gebiete der Mathematik und ihre Grenzgebiete, auch im Hinblick auf Anwendungen, vertreten sind. Das nachfolgende Tagungsprogramm belegt diese Politik.

The Institute emphasizes that all fields of mathematics and related areas are represented, including applications. The following schedule of meetings gives proof of this policy.

Workshops

ID	Date	Title
2502	5 Jan – 10 Jan 2025	Graph Theory
2503	12 Jan – 17 Jan 2025	Set Theory
2504	19 Jan – 24 Jan 2025	Cryptography
2505	26 Jan – 31 Jan 2025	Overparametrization, Regularization, Identifiability and Uncertainty in Machine Learning
2506	2 Feb – 7 Feb 2025	Mathematical Imaging and Surface Processing
2507	9 Feb – 14 Feb 2025	Geometric Structures in Group Theory
2509a	23 Feb – 28 Feb 2025	Data Assimilation: From Mathematical and Statistical Foundations to Applications
2509b	23 Feb – 28 Feb 2025	MATRIX-MFO Tandem Workshop: Nonlinear Geometric Diffusion Equations
2511	9 Mar – 14 Mar 2025	Mathematical Methods in Quantum Chemistry
2512	16 Mar – 21 Mar 2025	Finite Groups, Fusion Systems and Applications
2513	23 Mar – 28 Mar 2025	Frontiers of Statistics and Machine Learning
2515	6 Apr – 11 Apr 2025	Toric Geometry
2516	13 Apr – 18 Apr 2025	Algebraic Groups
2517	20 Apr – 25 Apr 2025	Uncertainty Quantification
2518	27 Apr – 2 May 2025	Computational Multiscale Methods
2519	4 May – 9 May 2025	Singularities in Discrete Systems
2520	11 May – 16 May 2025	Mathematical Advances in Geophysical Fluid Dynamics
2521	18 May – 23 May 2025	Enveloping Algebras and Geometric Representation Theory
2522	25 May – 30 May 2025	Statistical Physics Out of Equilibrium: Quantitative Results and Universality
2523	1 Jun – 6 Jun 2025	Computational Group Theory
2525	15 Jun – 20 Jun 2025	Recent Trends in Algebraic Geometry
2526	22 Jun – 27 Jun 2025	Non-Archimedean Geometry and Applications
2527	29 Jun – 4 Jul 2025	Differentialgeometrie im Großen
2528	6 Jul – 11 Jul 2025	Dynamische Systeme
2529	13 Jul – 18 Jul 2025	Real Analysis, Harmonic Analysis, and Applications
2530	20 Jul – 25 Jul 2025	Partial Differential Equations
2531	27 Jul – 1 Aug 2025	Subfactors and Applications
2532	3 Aug – 8 Aug 2025	C*-Algebras
2533	10 Aug – 15 Aug 2025	Algebraic K-theory
2534	17 Aug – 22 Aug 2025	Computation and Learning in High Dimensions
2535a	24 Aug – 29 Aug 2025	Cohomology Theories for Automorphic Forms and Enumerative Algebra
2535b	24 Aug – 29 Aug 2025	Stein's Method in Stochastic Geometry, Statistical Learning, and Optimisation

ID	Date	Title
2536	31 Aug – 5 Sep 2025	Large Scale Stochastic Dynamics
2537	7 Sep – 12 Sep 2025	New Mathematical Directions in Coding Theory
2538	14 Sep – 19 Sep 2025	Combinatorics, Probability and Computing
2540	28 Sep – 3 Oct 2025	Singularities
2545	2 Nov – 7 Nov 2025	Analytic Number Theory
2546	9 Nov – 14 Nov 2025	Arithmetic Statistics for Algebraic Objects
2547	16 Nov – 21 Nov 2025	Recent Developments in SPDEs and BSDEs meet Harmonic and Functional Analysis
2549	30 Nov – 5 Dec 2025	Functional Inequalities: Geometric Calculus meets Stochastic Analysis
2551	14 Dec – 19 Dec 2025	Homogeneous Structures: Model Theory meets Universal Algebra

Miniworkshops

ID	Date	Title
2508a	16 Feb – 21 Feb 2025	New Directions in Correlated Quantum Systems
2508b	16 Feb – 21 Feb 2025	Statistical Challenges for Deep Generative Models
2508c	16 Feb – 21 Feb 2025	MFO-RIMS Tandem Workshop: Optimization, Theoretical Computer Science and Algebraic Geometry: Convexity and Beyond
2510a	2 Mar – 7 Mar 2025	Alcoved Polytopes in Physics and Optimization
2510b	2 Mar – 7 Mar 2025	Recent Results on Loop Spaces
2510c	2 Mar – 7 Mar 2025	Hardy Inequalities in Discrete and Continuum Settings
2539a	21 Sep – 26 Sep 2025	MATRIX-MFO Tandem Workshop: Machine Learning and AI for Mathematics
2539b	21 Sep – 26 Sep 2025	Renormalisation and Randomness
2544a	26 Oct – 31 Oct 2025	Resurgence, Difference Equations and Quantum Modularity
2544b	26 Oct – 31 Oct 2025	The Yang–Baxter Equation and Representations of Braid Groups
2544c	26 Oct – 31 Oct 2025	Probabilistic Perspectives in Neural Network-Based Machine Learning
2550a	7 Dec – 12 Dec 2025	Algebraic Foliations: Analytic and Birational Viewpoint
2550b	7 Dec – 12 Dec 2025	Approximation of Manifold-Valued Functions
2550c	7 Dec – 12 Dec 2025	Hyperbolic meets Stochastic Geometry

Arbeitsgemeinschaften

ID	Date	Title
2514	30 Mar – 4 Apr 2025	Relative Langlands Duality
2541	5 Oct – 10 Oct 2025	Analysis of Many-body Quantum Systems
2542	12 Oct – 17 Oct 2025	Combinatorial Hodge Theory

Oberwolfach Seminars

ID	Date	Title
2524a	8 Jun – 13 Jun 2025	Stochastic Partial Differential Equations in Critical Spaces
2524b	8 Jun – 13 Jun 2025	Modern Developments in Matroid Theory
2543a	19 Oct – 24 Oct 2025	Tensor Triangular Geometry and Interactions
2543b	19 Oct – 24 Oct 2025	Phase Transitions and Turbulence including Fluids
2548a	23 Nov – 28 Nov 2025	Moduli Spaces of Canonical Metrics: Metric Riemannian Geometry and Topology
2548b	23 Nov – 28 Nov 2025	Time Parallel Time Integration

Further training activities

ID	Date	Title
2520a	10 May – 17 May 2025	Trainings- und Abschlusssseminar für die Internationale Mathematik-Olympiade
2545a	2 Nov – 7 Nov 2025	Banach Center – Oberwolfach Graduate Seminar: Modern Algebraic Geometry in Algebraic Combinatorics and Tensors

3.3. Workshops

Workshop 2502



05.01. – 10.01.2025

Organizers:

Graph Theory

Vida Dujmovic, Ottawa

Dan Král', Brno

Alex Scott, Oxford

Abstract

The workshop provided a venue for discussing several recent major developments in graph theory, with a primary focus on results concerning the notion of twin-width and hereditary properties of graphs. Both areas have seen a very rapid development recently, as reflected in the many results presented during the workshop. In addition to many interesting talks spanning the whole breadth of graph theory, the workshop also offered valuable collaboration opportunities, which also engaged early career researchers.

Participants

Bonamy, Marthe (Talence), Bonnet, Edouard (Lyon), Briński, Marcin (Kraków), Bucić, Matija (Princeton), Carmesin, Johannes (Freiburg), Chudnovsky, Maria (Princeton), Conlon, David (Pasadena), Davies, James (Cambridge), Delcourt, Michelle (Toronto), Diestel, Reinhard (Hamburg), Dujmovic, Vida (Ottawa), Dvorak, Zdenek (Praha), Esperet, Louis (Grenoble), Fox, Jacob (Stanford), Glock, Stefan (Passau), Groenland, Carla (Delft), Haxell, Penny E. (Waterloo), Hickingbotham, Robert (Lyon), Hogan, Emma (Oxford), Illingworth, Freddie (London), Joret, Gwenaél (Bruxelles), Kim, Eun Jung (Daejeon), Král', Daniel (Brno), Kwon, O-joung (Seoul), Lamaison, Ander (Daejeon), Leader, Imre (Cambridge), Liu, Chun-Hung (College Station), McCarty, Rose (Atlanta), Micek, Piotr (Kraków), Mohar, Bojan (Burnaby), Morin, Patrick (Ottawa), Nelson, Peter (Waterloo), Nešetřil, Jaroslav (Praha), Nguyen, Huy Tung (Princeton), Norin, Sergey (Montréal), Oum, Sang-il (Daejeon), Postle, Luke (Waterloo), Rambaud, Clément (Valbonne), Sauermann, Lisa (Bonn), Scott, Alex (Oxford), Seymour, Paul (Princeton), Steiner, Raphael Mario (Zürich), Sudakov, Benjamin (Zürich), Thomassé, Stéphan (Lyon), Trotignon, Nicolas (Lyon), Walczak, Bartosz (Kraków), Wesolek, Alexandra (Berlin), Yu, Xingxing (Atlanta)



12.01. – 17.01.2025

Organizers:

Set Theory

Ilijas Farah, Toronto

Ralf Schindler, Münster

Dima Sinapova, New Brunswick

Hugh Woodin, Cambridge MA

Abstract

Set theory has experienced rapid development in the recent years, both in pure set theory and in its applications to other fields of mathematics. We have seen breakthroughs in combinatorial set theory, forcing, inner models, descriptive set theory, Borel combinatorics, and moreover, exciting new connections between some of these areas. The workshop succeeded in presenting and discussing the important developments, fostering interaction between researchers, and stimulating the field.

Participants

Adkisson, William (Chicago), Asperó, David (Norwich), Benhamou, Tom (Piscataway), Blue, Douglas (Pittsburgh), Calderoni, Filippo (Piscataway), Chan, William (Wien), Cummings, James W. (Pittsburgh), Dobrinen, Natasha (Notre Dame), Farah, Ilijas (Toronto, Ontario), Fischer, Vera (Wien), Foreman, Matthew D. (Irvine), Gao, Su (Tianjin), Gitik, Moti (Ramat Aviv, Tel Aviv), Glazer, Elliot (Berkeley), Goldberg, Gabriel (Berkeley), Hamkins, Joel David (Notre Dame), Hrusak, Michael (Morelia), Iyer, Sumun (Pittsburgh), Jackson, Stephen C. (Denton), Jakob, Hannes (Freiburg i. Br.), Kaplan, Eyal (Berkeley), Kasum, Obrad (Paris), Levine, Maxwell (Freiburg i. Br.), Lietz, Andreas (Wien), Magidor, Menachem (Jerusalem), Marks, Andrew (Berkeley), Mildenerberger, Heike (Freiburg i. Br.), Moore, Justin Tatch (Ithaca), Müller, Sandra (Wien), Neeman, Itay (Los Angeles), Poveda Ruzafa, Alejandro (Cambridge), Rinot, Assaf (Ramat-Gan), Sabok, Marcin (Montréal), Schindler, Ralf (Münster), Schlutzenberg, Farmer (Wien), Sinapova, Dima (New Brunswick), Solecki, Slawomir (Ithaca), Sorouri, Shervin (Münster), Todorčević, Stevo (Toronto), Trang, Nam (Denton), Tsankov, Todor (Villeurbanne), Tserunyan, Anush (Montréal), Usuba, Toshimichi (Tokyo), Vaccaro, Andrea (Münster), Veličković, Boban D. (Paris), Viale, Matteo (Torino), Vignati, Alessandro (Paris), Woodin, W. Hugh (Cambridge), Yasuda, Taichi (Münster), Zomback, Jenna (Amherst)



19.01. – 24.01.2025

Organizers:

Cryptography

Johannes Buchmann, Darmstadt

Shafi Goldwasser, Berkeley

Yael Tauman Kalai, Cambridge MA

Vinod Vaikuntanathan, Cambridge MA

Abstract

The science of cryptography lies at the very foundations of trust in current and future systems and devices for communication and computation. Security and efficiency of cryptographic schemes rely heavily on mathematics. Dramatic changes in computational technologies raise new challenges, and therefore new opportunities, for cryptography. In the last half decade, there have been spectacular advances in cryptography, in the areas of program obfuscation, verifiable computation, elliptic curves and isogenies, lattice-based cryptography, quantum cryptography, cryptographic techniques in machine learning, and more. This workshop brought together experts from mathematics and computer science such as algorithmic number theory and algebra, quantum computation and complexity theory, in order to discuss recent advances and make progress in constructing the new generation of cryptographic systems that protect the future of information and computation.

Participants

Applebaum, Benny (Ramat Aviv, Tel Aviv), Beimel, Amos (Beer-Sheva), Bitansky, Nir (New York), Brakerski, Zvika (Rehovot), Brzuska, Chris (Espoo), Buchmann, Johannes (Darmstadt), Canetti, Ran (Boston), Devadas, Lalita (Cambridge), Döttling, Nico (Saarbrücken), Dujmovic, Jesko (Saarbrücken), Goldwasser, Shafi (Berkeley), Goyal, Rohan (Cambridge), Henzinger, Alexandra (Cambridge), Herman, Tal (Rehovot), Ishai, Yuval (Haifa), Jain, Aayush (Pittsburgh), Jain, Abhishek (Palo Alto), Joux, Antoine (Saarbrücken), Khurana, Dakshita (Urbana), Kiltz, Eike (Bochum), Kohl, Lisa (Amsterdam), Kushilevitz, Eyal (Haifa), Lin, Huijia (Rachel) (Seattle), Lombardi, Alex (Princeton), Loss, Julian (Saarbrücken), Ma, Fermi (Berkeley), Malavolta, Giulio (Milano), Malkin, Tal (New York), Mathialagan, Surya (Cambridge), Micciancio, Daniele (La Jolla), Naor, Moni (Rehovot), Paneth, Omer (Tel Aviv), Pellet-Mary, Alice (Talence), Poremba, Alexander (Cambridge), Quach, Willy (Saarbrücken), Rosen, Alon (Milano), Rothblum, Guy (Rehovot), Rothblum, Ron (Haifa), Tauman Kalai, Yael (Cambridge), Teske, Edlyn (Leipzig), Tessaro, Stefano (Seattle), Vafa, Neekon (Cambridge), Vaikuntanathan, Vinod (Cambridge), Vasudevan, Prashant (Singapore), Wesolowski, Benjamin (Lyon), Wichs, Daniel (Boston), Wu, David (Austin), Zamir, Or (Ramat Aviv, Tel Aviv)



26.01. – 31.01.2025

Overparametrization, Regularization, Identifiability and Uncertainty in Machine Learning

Organizers:

Nicolò Cesa-Bianchi, Milano
Philipp Hennig, Tübingen
Andreas Krause, Zürich
Ulrike von Luxburg, Tübingen

Abstract

In machine learning, a field addressing the extraction of information and structure from finite data with the means of computer science and mathematics, maps from finite-dimensional spaces of data or computations into spaces of higher, or infinite dimensionality are a central theme. The workshop brought together researchers with diverse viewpoints to discuss how different theoretical sub-communities within the field treat the resulting ill-posed operations, and what kind of features of algorithms and models can emerge as a result.

Participants

Bach, Francis (Paris), Bhattacharjee, Robi (Tübingen), Bietti, Alberto (New York), Boyer, Claire (Paris), Cesa-Bianchi, Nicolò (Milano), Cesari, Tom (Ottawa), Chennuru Vankadara, Leena (Tübingen), Da Costa, Nathaël (Tübingen), Dangel, Felix (Toronto), Esposito, Emmanuel (Milano), Flammarion, Nicolas (Lausanne), Ghoshdastidar, Debarghya (München), Gretton, Arthur (London), Guo, Siyuan (Tübingen), Haas, Moritz (Tübingen), Hennig, Philipp (Tübingen), Huang, Shuo (Genova), Kostin, Julia (Zürich), Krause, Andreas (Zürich), Kunstner, Frederik (Paris), Kur, Gil (Zürich), Locatello, Francesco (Klostern-euburg), Magnani, Emilia (Tübingen), Mansour, Yishay (Ramat Aviv, Tel Aviv), Mendler-Dünner, Celestine (Tübingen), Mücke, Nicole (Braunschweig), Neu, Gergely (Barcelona), Orvieto, Antonio (Tübingen), Perchet, Vianney (Palaiseau), Pförtner, Marvin (Tübingen), Ramponi, Giorgia (Zürich), Rosasco, Lorenzo (Genova), Schölkopf, Bernhard (Tübingen), Vernade, Claire (Tübingen), von Luxburg, Ulrike (Tübingen), Voracek, Vaclav (Tübingen), Walter, Daniel (Berlin), Walther, Andrea (Berlin), Weiland, Tim (Tübingen), Wenger, Jonathan (New York), Yang, Fanny (Zürich)



02.02. – 07.02.2025

Organizers:

Mathematical Imaging and Surface Processing

Mirela Ben-Chen, Haifa

Antonin Chambolle, Paris

Benedikt Wirth, Münster

Abstract

The workshop was designed to foster exchange and collaboration between applied mathematicians and applied computer scientists on problems arising in computer graphics, geometry processing and image analysis. The participants are also interested in computational and theoretical issues of data science, and theory and methods of machine learning were featured in many of the talks. About 40 participants, with many younger post-docs or PhD students, could exchange and work on these themes, while coming from quite different backgrounds (academic and industrial). Several talks emphasized the strength of fundamental theoretical concepts, such as symmetries of Lie groups or curvature in Riemannian geometry, for important applications in graphics, vision, construction and architecture.

Participants

Beinert, Robert (Berlin), Ben-Chen, Mirela (Haifa), Beutler, Sascha (Münster), Bronstein, Alexander (Haifa), Chambolle, Antonin (Paris), Chern, Albert R. (La Jolla), Crane, Keenan (Pittsburgh), Delon, Julie (Paris), Desolneux, Agnes (Gif-sur-Yvette), Feng, Nicole (Pittsburgh), Gillespie, Mark (Palaiseau), Hartwig, Florine (Bonn), Hertrich, Johannes (Paris), Kazhdan, Michael (Baltimore), Kimmel, Ron (Haifa), Kobbelt, Leif (Aachen), Löhner, Zorah (Bonn), Mattos Da Silva, Leticia (Cambridge), Mitra, Niloy (London), Neumayer, Sebastian (Chemnitz), Pacheco-Tallaj, Natalia (Cambridge), Papadakis, Nicolas (Talence), Pennec, Xavier (Sophia-Antipolis), Pierret, Emile (Orléans), Poranne, Roi (Haifa), Pottmann, Helmut (Wien), Ren, Samara (Klosterneuburg), Rotstein, Noam (Haifa), Rumpf, Martin (Bonn), Sassen, Josua (Gif-sur-Yvette), Schröder, Peter (Pasadena), Schwarz, Simon (Göttingen), Sharp, Nicholas (Toronto), Uesseler, Nikolas (Münster), Vaiter, Samuel (Nice), Vaxman, Amir (Edinburgh), Vouga, Etienne (Austin), Wiersma, Ruben (Zürich), Williamson, Romy (London), Wirth, Benedikt (Münster), Zorin, Denis (New York)



09.02. – 14.02.2025

Organizers:

Geometric Structures in Group Theory

Martin Bridson, Oxford

Cornelia Drutu, Oxford

Linus Kramer, Münster

Bertrand Rémy, Lyon

Abstract

The general subject of the conference was geometric group theory, that is the study of groups via suitable actions on spaces endowed with additional structures, for instance a distance, a measure (class), or both of them with natural compatibilities. The interactions with other mathematical fields such as algebraic topology (e.g. via homological methods), functional analysis (e.g. via the theory of operator algebras), probability theory (e.g. via random walks) or even representation theory and number theory, play an increasing role in the development of this part of group theory.

Participants

Arzhantseva, Goulmara N. (Wien), Bridson, Martin R. (Oxford), Brück, Benjamin (Münster), Burger, Marc (Zürich), Caprace, Pierre-Emmanuel (Louvain-la-Neuve), Dahmani, Francois (Saint-Martin-d'Hères), de Laat, Tim (Kiel), de la Salle, Mikael (Lyon), Drutu Badea, Cornelia (Oxford), Fioravanti, Elia (Karlsruhe), Fruchter, Jonathan (Bonn), Fujiwara, Koji (Kyoto), Gardam, Giles (Bonn), Groves, Daniel (Chicago), Guirardel, Vincent (Rennes), Hamenstädt, Ursula (Bonn), Horbez, Camille (Orsay), Iozzi, Alessandra (Zürich), Jaikin-Zapirain, Andrei (Madrid), Jankiewicz, Kasia (Santa Cruz), Kammeyer, Holger (Düsseldorf), Kerr, Alice (Bristol), Kramer, Linus (Münster), Kudlinska, Monika (Cambridge), Llosa Isenrich, Claudio (Karlsruhe), Lopez Neumann, Antonio (Warszawa), Lubotzky, Alex (Jerusalem), Mackay, John (Bristol), Martelli, Bruno (Pisa), Möller, Philip (Düsseldorf), Osajda, Damian L. (Wrocław), Osin, Denis (Nashville), Petyt, Harry (Oxford), Przytycki, Piotr (Montréal), Py, Pierre (Grenoble), Reid, Alan W. (Houston), Rémy, Bertrand (Lyon), Sauer, Roman (Karlsruhe), Schwer, Petra (Heidelberg), Sela, Zlil (Jerusalem), Shepherd, Sam (Münster), Sisto, Alessandro (Edinburgh), Thom, Andreas B. (Dresden), Thomas, Anne (Sydney), Varghese, Olga (Münster), Vigolo, Federico (Göttingen), Wade, Richard (Oxford), Wienhard, Anna Katharina (Leipzig), Wilton, Henry (Cambridge), Witzel, Stefan (Gießen), Young, Robert (New York), Zbinden, Stefanie (Edinburgh)



23.02. – 28.02.2025

Data Assimilation: From Mathematical and Statistical Foundations to Applications

Organizers:

Jana de Wiljes, Ilmenau
Youssef Marzouk, Cambridge MA
Aretha Teckentrup, Edinburgh

Abstract

Data assimilation, where predictions from a dynamical system are updated sequentially based on new and incomplete observations, is increasingly finding applications in many areas of science and technology. This workshop brought together a collection of scientists from dynamical systems, statistics, machine learning, applied probability, uncertainty quantification, and mathematical modelling, as well as practitioners in the field.

Participants

Addy, Elliot (Edinburgh), Bocquet, Marc (Marne-la-Vallée), Carrassi, Alberto (Bologna), Chandramoorthy, Nisha (Chicago), de Wiljes, Jana (Ilmenau), Dubinkina, Svetlana (Amsterdam), Hastermann, Gottfried (Ilmenau), Lang, Oana (Cluj-Napoca), Marzouk, Youssef (Cambridge), Maurais, Aimee (Cambridge), Mehta, Prashant (Urbana), Miguez, Joaquín (Leganes), Mula, Olga (Eindhoven), Pathiraja, Sahani (Sydney), Reimann, Hans (Heidelberg), Sanz-Alonso, Daniel (Chicago), Teckentrup, Aretha (Edinburgh), Tong, Xin (Singapore), Ullmann, Elisabeth (Garching bei München), van Leeuwen, Peter Jan (Fort Collins), Wang, Sven (Berlin), Zanger, Benjamin (Saint-Martin-d'Hères)



23.02. – 28.02.2025

MATRIX-MFO Tandem Workshop: Nonlinear Geometric Diffusion Equations

Organizers:

Theodora Bourni, Knoxville
Mat Langford, Canberra
Julian Scheuer, Frankfurt a.M.
Miles Simon, Magdeburg

Abstract

This tandem workshop with MATRIX in Creswick, Australia, brought together leading experts from the fields of geometric partial differential equations and geometric analysis in general. The focus of the workshop was on recent developments and directions in non-linear geometric diffusion equations. The main flows considered were mean curvature flow, inverse mean curvature flow, Ricci flow, Willmore flow, as well as related flows. A number of the results and methods were in the setting of general relativity, where flows have been very successful in helping solve major problems (for example the resolution of the Penrose conjecture by Huisken/Ilmanen using the inverse mean curvature flow). For four days of the workshop there were combined (with MATRIX) morning talks and extensive discussions.

Participants

Bourni, Theodora (Knoxville), Buzano, Reto (Torino), Cabezas-Rivas, Esther (Burjassot), Cernomazov, Nikita (Frankfurt am Main), Chen, Eric (Berkeley), Fogagnolo, Mattia (Padova), Huisken, Gerhard (Tübingen), Ivaki, Mohammad (Wien), Klingenberg, Wilhelm H. (Durham), Lambert, Ben (Leeds), Lamm, Tobias (Karlsruhe), Langford, Mathew (Canberra), Litzinger, Florian (Magdeburg), Lynch, Stephen (London), Mäder-Baumdicker, Elena (Darmstadt), Mramor, Alexander (København), Pluda, Alessandra (Pisa), Reiris-Ithurralde, Martin (Montevideo), Rupp, Fabian (Wien), Scheuer, Julian (Frankfurt am Main), Simon, Miles (Magdeburg), Stolarski, Maxwell (Coventry), Vicanek Martinez, Olivia (Tübingen), Vishwamitra, Priyamvada (Magdeburg), Vogiatzi, Artemis (Copenhagen), Wang, Guofang (Freiburg i. Br.), Wolff, Markus (Stockholm)



09.03. – 14.03.2025

Organizers:

Mathematical Methods in Quantum Chemistry

Geneviève Dusson, Besançon

Michael Herbst, Lausanne

Benjamin Stamm, Stuttgart

Abstract

Quantum chemistry focuses on modelling and simulating the behaviour of molecular systems using the fundamental principles of quantum mechanics. However, the underlying equations, such as the Schrödinger equation for computing the ground state of N electrons, which is a partial differential equation defined on $\mathbb{R}^{3N}$, suffer from the curse of dimensionality. As a result, simulating even moderately sized molecules demands advanced techniques in analysis, approximation and reduced-order modelling for overcoming the naive computational complexity. In this workshop, the rapidly growing mathematical community working in the field together with several quantum chemists and physicists were gathered to discuss recent advances in areas such as (1) the mathematical and numerical analysis of standard models used in the field, including Density Functional Theory, Coupled Cluster, and the Density Matrix Renormalization Group (2) the development of efficient numerical methods, relying e.g. on the development of error bounds and (3) the opportunities of recent data-driven methods towards the approximation of wavefunctions or density matrices.

Participants

Burke, Kieron (Irvine), Cancès, Eric (Marne-la-Vallée), Carvalho Corso, Thiago (Stuttgart), Cazeaux, Paul (Blacksburg), Chen, Huajie (Beijing), Dai, Xioaying (Beijing), Dupuy, Mi-Song (Paris), Dusson, Geneviève (Besançon), Ehrlacher, Virginie (Marne-la-Vallée), Faulstich, Fabian M. (Troy), Fisher, Katharine (Cambridge), Friesecke, Gero (Garching bei München), Garrigue, Louis (Cergy-Pontoise), Grazioli, Laura (Marne-la-Vallée), Hassan, Muhammad (Lausanne), Henning, Patrick (Bochum), Herbst, Michael F. (Lausanne), Kemlin, Gaspard (Amiens), Kermode, James (Coventry), Kirsch, Alfred (Marne-la-Vallée), Kvaal, Simen (Oslo), Laestadius, Andre (Oslo), Lainez Reyes, Rafael (Stuttgart), Lasser, Caroline (Garching bei München), Legeza, Örs (Budapest), Levitt, Antoine (Orsay), Lewin, Mathieu (Paris), Lin, Lin (Berkeley), Lindsey, Michael (Berkeley), Lubich, Christian (Tübingen), Maday, Yvon (Paris), Massat, Daniel (Baton Rouge), Neese, Frank (Mülheim an der Ruhr), Nottoli, Michele (Stuttgart), Pedersen, Thomas Bondo (Oslo), Penz, Markus (Innsbruck), Peterseim, Daniel (Augsburg), Ploumhans, Bruno (Lausanne), Schmitz, Niklas (Lausanne), Schneider, Reinhold (Berlin), Stamm, Benjamin (Stuttgart), Stroschein, Timothy (Zürich), Toulouse, Julien (Paris), van Leeuwen, Robert (Jyväskylä), Zeng, Zhuoyao (Stuttgart), Zhang, Liwei (Aachen), Zhou, Dexuan (Vancouver)



16.03. – 21.03.2025

Organizers:

Finite Groups, Fusion Systems and Applications

Inna Capdeboscq, Coventry

Ellen Henke, Dresden

Martin Liebeck, London

Abstract

The Classification of Finite Simple Groups (CFSG) is considered to be one of the most important results of modern mathematics, and has led to many applications both inside and outside group theory. The theory of fusion systems, although originating in topology and modular representation theory, has quite recently grown into a new field with the potential for very strong impact in finite group theory, and in particular on one of the programmes for a new proof of part of the CFSG. The workshop focussed on some of these developments, as well as recent applications of finite group theory both within group theory and in other areas such as algebraic topology and algebraic combinatorics.

Participants

Baumeister, Barbara (Bielefeld), Broto, Carles (Bellaterra, Barcelona), Capdeboscq, Inna (Coventry), Chermak, Andrew L. (Manhattan), Craven, David A. (Birmingham), del Valle, Coen (St. Andrews), Dona, Daniele (Budapest), Gill, Nick (Milton Keynes), Giudici, Michael (Perth), Glazer, Itay (Haifa), Grazian, Valentina (Padova), Guralnick, Robert M. (Los Angeles), Helfgott, Harald A. (Paris), Henke, Ellen (Dresden), Huang, Hongyi (Bristol), Kassabov, Martin (Ithaca), Köhl, Ralf (Kiel), Liebeck, Martin W. (London), Lifshitz, Noam (Jerusalem), Litterick, Alastair James (Colchester), Lübeck, Frank (Aachen), Lynd, Justin (Lafayette), Malle, Gunter (Kaiserslautern), Maroti, Attila (Budapest), Mazza, Nadia (Lancaster), McKemmie, Eilidh (Newark), Morotti, Lucia (Heslington, York), Mühlherr, Bernhard M. (Gießen), Oliver, Robert (Villetaneuse), Parker, Christopher W. (Birmingham), Parmeggiani, Gemma (Padova), Piterman, Kevin Ivan (Bruxelles), Praderio Bova, Marco (Dresden), Praeger, Cheryl E. (Crawley), Rekvényi, Kamilla (Manchester), Rizzoli, Aluna (London), Roney-Dougal, Colva (St. Andrews), Roth, Marie (Kaiserslautern), Salati, Edoardo (Kaiserslautern), Schneider, Jakob (Dresden), Semeraro, Jason (Loughborough), Serwene, Patrick (Dresden), Stellmacher, Bernd (Kiel), Stroth, Gernot (Halle / Saale), Tan, Yuanhao (Birmingham), Testerman, Donna M. (Lausanne), Thomas, Adam (Coventry), Tiep, Pham (Piscataway), Toborg, Imke (Halle / Saale), Vahedi, Ava (Dresden), van Beek, Martin (Manchester), van Bon, John (Rende), Weiss, Richard M. (Medford), Zhang, Baoyu (Birmingham)



23.03. – 28.03.2025

Organizers:

Frontiers of Statistics and Machine Learning

Marc Hoffmann, Paris

Richard J. Samworth, Cambridge UK

Johannes Schmidt-Hieber, Enschede

Claudia Strauch, Heidelberg

Abstract

AI is currently the central theme in science. Whereas the underlying algorithms rely on rather simple mathematical operations such as matrix-vector multiplications and applying non-linearities componentwise, deriving a theoretical understanding proves to be extremely challenging. To identify synergies between the fields of mathematical statistics and theoretical machine learning, the workshop brought together leading researchers and rising stars who are tackling core challenges at the intersection of these fields. We have identified the topics of robustness and model misspecification, statistical theory for neural networks and statistics for stochastic processes as three key themes that underpin increasingly many current developments. These topics were the focus of the talks and research that was carried out during the Oberwolfach week.

Participants

Amorino, Chiara (Barcelona), Bach, Francis (Paris), Bartlett, Peter (Berkeley), Berrett, Tom (Coventry), Bühlmann, Peter (Zürich), Carpentier, Alexandra (Potsdam), Chen, Juntong (Enschede), Clara, Gabriel (Enschede), Dalalyan, Arnak (Palaiseau), Dette, Holger (Bochum), Dexheimer, Niklas (Enschede), Gao, Chao (Chicago), Halconrui, Helene (Palaiseau), Hoffmann, Marc (Paris), Klopp, Olga (Cergy-Pontoise), Koolen, Wouter (Amsterdam), Langer, Sophie (Enschede), Mammen, Enno (Heidelberg), Meinshausen, Nicolai (Zürich), Montanari, Andrea (Stanford), Mücke, Nicole (Braunschweig), Müller, Manuel (Cambridge), Peters, Jonas (Zürich), Podolskij, Mark (Belvaux), Reeve, Henry (Bristol), Reiß, Markus (Berlin), Reynaud-Bouret, Patricia (Nice), Samworth, Richard (Cambridge), Schmidt-Hieber, Johannes (Enschede), Shah, Rajen Dinesh (Cambridge), Strauch, Claudia (Heidelberg), Suzuki, Taiji (Tokyo), Thomsen, Asbjørn Holk (Aarhus), Trabs, Mathias (Karlsruhe), Trottnier, Lukas (Birmingham), Tsybakov, Alexandre B. (Palaiseau), van der Vaart, Aad (Delft), Verchand, Kabir (Atlanta), Verzelen, Nicolas (Montpellier), Wainwright, Martin (Cambridge), Wang, Sven (Berlin), Wang, Tengyao (London), Wei, Yuting (Philadelphia), Xu, Min (New Brunswick), Yang, Fanny (Zürich), Young, Elliot (Cambridge), Yu, Yi (Coventry)



06.04. – 11.04.2025

Organizers:

Toric Geometry

Daniel Erman, Honolulu
Milena Hering, Edinburgh
Nathan Ilten, Burnaby
Hendrik Süß, Jena

Abstract

Toric varieties provide a rich class of examples in algebraic geometry that benefit from deep and fruitful interactions with combinatorics. This workshop highlighted recent interactions between toric geometry and mirror symmetry, matroids, deformation theory and moduli spaces, and non-commutative geometry, as well as some exciting new developments within toric geometry itself. The perspective of the workshop was one looking outwards: how can toric methods lead to new results in and new connections between other areas?

Participants

Ablett, Patience (Coventry), Adiprasito, Karim (Paris), Altmann, Klaus (Berlin), Batyrev, Victor V. (Tübingen), Berkesch, Christine (Minneapolis), Borisov, Lev A. (Piscataway), Brion, Michel (Gières), Bruce, Juliette (Hanover), Cook, Adrian (Edinburgh), Corti, Alessio (London), Cranton Heller, Lauren (Lincoln), Di Rocco, Sandra (Stockholm), Erman, Daniel (Honolulu), Eur, Christopher (Pittsburgh), Fink, Alex (London), Garzon Mora, Sofia (Berlin), Görlach, Paul (Magdeburg), Haase, Christian (Berlin), Hanlon, Andrew (Hanover), Hausen, Jürgen (Tübingen), Hering, Milena (Edinburgh), Heuberger, Liana (Bath), Hicks, Jeff (St. Andrews), Huang, Jesse (Waterloo), Ilten, Nathan (Burnaby), Kaveh, Kiumars (Pittsburgh), Lee, Tsung-Ju (Tainan), Maclagan, Diane (Coventry), Manon, Christopher (Lexington), Meier, Leandro (Jena), Monin, Leonid (Lausanne), Napame, Achim (Campinas), Nill, Benjamin (Magdeburg), Petracci, Andrea (Bologna), Rana, Julie (Appleton), Robins, Sharon (Burnaby), Rollenske, Sönke (Marburg), Sabatini, Silvia (Köln), Sano, Yuji (Fukuoka), Sayrafi, Mahrud (Toronto, Ontario), Schaller, Karin (Frankfurt am Main), Schenck, Henry K. (Auburn), Schreyer, Frank-Olaf (Saarbrücken), Smith, Gregory G. (Kingston), Sottile, Frank (College Station), Süß, Hendrik (Jena), Teissier, Bernard (Paris), Telen, Simon (Leipzig), Tevelev, Jenia (Amherst), Wormleighton, Ben (St. Louis), Wrobel, Milena (Oldenburg)



13.04. – 18.04.2025

Organizers:

Algebraic Groups

Philippe Gille, Villeurbanne

Friedrich Knop, Erlangen

Peng Shan, Beijing

Abstract

The field of Linear Algebraic Groups is still a very active research area in contemporary mathematics. It has rich connections to algebraic geometry, representation theory, algebraic combinatorics, number theory, algebraic topology, and differential equations. The foundations of this theory were laid by A. Borel, C. Chevalley, J.-P. Serre, T. A. Springer, R. Steinberg, and J. Tits in the second half of the 20th century. The Oberwolfach workshops on algebraic groups, led by Springer and Tits, played an important role in this effort as a forum for researchers, meeting at regular intervals since 1971. The present workshop continued this tradition, covering a range of topics, with an emphasis on recent developments in the subject.

Participants

Andersen, Henning Haahr (Aarhus), Arzhantsev, Ivan (Moscow), Balajii, Vikraman (Siruseri), Balibanu, Ana (Baton Rouge), Bate, Michael (York), Belkale, Prakash (Chapel Hill), Blanc, Jérémy (Neuchâtel), Böhm, Sören (Bochum), Braverman, Alexander (Toronto), Bravi, Paolo (Roma), Chen, Lin (Beijing), Cotner, Sean (Ann Arbor), Cupit-Foutou, Stéphanie (Bochum), De Concini, Corrado (Roma), Fiebig, Peter (Erlangen), Florence, Mathieu (Paris), Francone, Luca (Roma), Gille, Philippe (Villeurbanne), Gruber, Jonathan (Erlangen), Heinloth, Jochen (Essen), Jakob, Konstantin (Darmstadt), Knop, Friedrich (Erlangen), Kraft, Hanspeter (Basel), Kumar, Shrawan (Chapel Hill), Lachowska, Anna (Lausanne), Lanini, Martina (Roma), Li, Shang (Beijing), Maccan, Matilde (Bochum), Maffei, Andrea (Pisa), Martin, Benjamin M. S. (Aberdeen), Mayeux, Arnaud (Jerusalem), Panyushev, Dmitri I. (Moscow), Parameswaran, Aryampilly J. (Kozhikode), Pereira Lourenço, João Nuno (Münster), Pezzini, Guido (Roma), Premet, Alexander (Manchester), Ressayre, Nicolas (Villeurbanne), Richarz, Timo (Darmstadt), Riche, Simon (Aubière), Röhrle, Gerhard (Bochum), Schröer, Stefan (Düsseldorf), Shan, Peng (Beijing), Situ, Quan (Clermont-Ferrand), Soergel, Wolfgang (Freiburg i. Br.), Stavrova, Anastasia (St. Petersburg), Terpereau, Ronan (Villeneuve d'Ascq), Varagnolo, Michela (Cergy-Pontoise), Vasserot, Eric (Paris), Weekes, Alex (Saskatoon), Yakimova, Oksana (Jena), Yang, Fang (Bonn), Zhgoon, Vladimir (Moscow)



20.04. – 25.04.2025

Organizers:

Uncertainty Quantification

Oliver Ernst, Chemnitz

Fabio Nobile, Lausanne

Claudia Schillings, Berlin

Tim Sullivan, Coventry/London

Abstract

Uncertainty quantification (UQ) is concerned with including and characterising uncertainties in mathematical models. Major steps include the proper description of system uncertainties, analysis and efficient quantification of uncertainties in predictions and design problems, and statistical inference on uncertain parameters starting from available measurements. Research in UQ addresses fundamental mathematical and statistical challenges, but has also wide applicability in areas such as engineering, environmental, physical and biological applications. This workshop focussed on mathematical challenges at the interface of applied mathematics, probability and statistics, numerical analysis, scientific computing and application domains such as machine learning, modelling of energy production, and bifurcations in climate models. The workshop brought together experts from those disciplines to enhance their interaction, to exchange ideas and to develop new, powerful methods for UQ.

Participants

Barth, Andrea (Stuttgart), Chen, Joshua (Austin), Chernov, Alexey (Oldenburg), Curato, Imma Valentina (Chemnitz), Djurdjevac, Ana (Berlin), Dolbeault, Matthieu (Aachen), Ernst, Oliver (Chemnitz), Fox, Colin (Dunedin), Geiersbach, Caroline (Hamburg), Gottschalk, Hanno (Berlin), Guth, Philipp (Linz), Harbrecht, Helmut (Basel), Helin, Tapio (Lappeenranta), Hoang, Ly Duc (Berlin), Hüllermeier, Eyke (München), Kazashi, Yoshihito (Glasgow), Kekkonen, Hanne (Delft), Kirchner, Kristin (Delft), Klebanov, Ilja (Berlin), Koenig, Oliver (Stuttgart), Lambley, Hefin (Coventry), Latz, Jonas (Manchester), Lie, Han Cheng (Potsdam), Lux-Gottschalk, Kerstin (Eindhoven), Marzouk, Youssef (Cambridge), Morrison, Rebecca (Boulder), Nobile, Fabio (Lausanne), Owhadi, Houman (Pasadena), Piazzola, Chiara (München), Poguntke, Moritz (Chemnitz), Reich, Sebastian (Potsdam), Reiß, Markus (Berlin), Rudolf, Daniel (Passau), Rue, Havard (Jeddah), Schäfer, Florian (Atlanta), Schillings, Claudia (Berlin), Schwab, Christoph (Zürich), Sprungk, Björn (Freiburg), Stadler, Georg (New York), Strauch, Claudia (Heidelberg), Sullivan, Tim (Coventry), Tamellini, Lorenzo (Pavia), Tempone, Raul F. (Aachen), Ullmann, Elisabeth (Garching bei München), Wang, Sven (Berlin), Weissmann, Simon (Mannheim), Wrischnig, Dana (Berlin), Zech, Jakob (Heidelberg)



27.04. – 02.05.2025

Organizers:

Computational Multiscale Methods

Björn Engquist, Austin
Daniel Peterseim, Augsburg
Barbara Verfürth, Bonn
Yunan Yang, Ithaca

Abstract

Many scientific and engineering problems exhibit complex interactions over a wide range of inseparable scales in space and time. Direct numerical simulations to solve such multiscale problems are often beyond current computational capabilities. The difficulties are exacerbated by the presence of uncertainty, randomness, and disorder and are hardly manageable for multiscale inverse problems. Therefore, the simulation of novel phenomena using multiscale models requires a new generation of multiscale computational methods. These must account for under-resolved scales, cross-scale couplings, and stochasticity in a hierarchical and adaptive manner and be able to integrate probabilistic, data-driven, and machine learning approaches. The workshop enhanced the development of a new generation of efficient multiscale computational methods and their rigorous mathematical and numerical analysis so that reliable and fast simulations of challenging multiscale problems from applications eventually become a reality.

Participants

Botvinick-Greenhouse, Jonah (Ithaca), Brenner, Susanne C. (Baton Rouge), Chung, Eric T. (Shatin, N.T., Hong Kong), Deiml, Matthias (Augsburg), Döding, Christian (Bonn), Efendiev, Yalchin (College Station), Engquist, Björn (Austin), Feischl, Michael (Wien), Fischer, Julian (Klosterneuburg), Frederick, Christina A. (Newark), Gallistl, Dietmar (Jena), Guo, Theron (Cambridge), Hauck, Moritz (Karlsruhe), Henning, Patrick (Bochum), Hermann, Martin (Augsburg), Ho, Cheuk Hin (Vancouver), Hou, Thomas Y. (Pasadena), Hu, Junpeng (Shanghai Shi), Khrais, Maher (Bonn), Kolombage, Dilini (Bonn), Kornhuber, Ralf (Berlin), Lang, Annika (Göteborg), Le Bris, Claude (Marne-la-Vallée), Legoll, Frederic (Marne-la-Vallée), Li, Guanglian (Hong Kong), Liu, Xinliang (Thuwal), Lozinski, Alexei (Besançon), Lukáčová-Medvidová, Mária (Mainz), Maier, Roland (Karlsruhe), Malqvist, Axel (Göteborg), Mosquera, Malin (Göteborg), Otto, Felix (Leipzig), Owhadi, Houman (Pasadena), Peter, Malte (Augsburg), Peterseim, Daniel (Augsburg), Schedensack, Mira (Leipzig), Scheichl, Robert (Heidelberg), Smetana, Kathrin (Hoboken), Sprekeler, Timo (College Station), Sung, Li-yeng (Baton Rouge), Swoboda, Lucia (Göteborg), Teckentrup, Aretha (Edinburgh), Tornberg, Anna-Karin (Stockholm), Tran, Ngoc Tien (Augsburg), Tsai, Yen-Hsi Richard (Austin), Ullmann, Elisabeth (Garching bei München), Verfürth, Barbara (Bonn), Wang, Li (Minneapolis), Wang, Yangshuai (Singapore), Yang, Yunan (Ithaca), Ying, Lexing (Stanford), Yserentant, Harry (Berlin), Zhao, Lina (Hong Kong)



04.05. – 09.05.2025

Organizers:

Singularities in Discrete Systems

Lucia Scardia, Edinburgh

Ulisse Stefanelli, Vienna

Florian Theil, Coventry

Abstract

Discrete systems are ubiquitous in applications. Their analysis and simulation call for taming their inherent multiscale character, as microscopic dynamics lead to the emergence of structures across scales. This workshop brought together leading experts in the calculus of variations, discrete systems, and materials science to explore cutting-edge topics at the intersection of mathematics and physical modelling. Presentations spanned a variety of themes, including dislocation dynamics, crystallization, micromagnetics, fracture mechanics, and discrete-to-continuum transitions. Particular emphasis was placed on the rigorous analysis of singular structures, nonlocal interactions, and energy-driven pattern formation. Several talks also underscored emerging connections with data science.

Participants

Acharya, Amit (Pittsburgh), Ariza Moreno, Pilar (Sevilla), Bach, Annika (Eindhoven), Bétermin, Laurent (Villeurbanne), Bourdais, Theo (Pasadena), Braun, Julian (Edinburgh), Briani, Luca (München), Bruna, Maria (Oxford), Bungert, Leon (Würzburg), Buze, Maciej (Lancaster), Chiesa, Andrea (Wien), Choksi, Rustum (Montréal), Cicalese, Marco (Garching bei München), Cristofori, Riccardo (Nijmegen), Daneri, Sara (L'Aquila), Davoli, Elisa (Wien), D'Elia, Lorenza (Wien), De Luca, Lucia (Roma), Fernandez-Jimenez, Alejandro (Oxford), Fischer, Julian (Klosterneuburg), Friedrich, Manuel (Erlangen), Garroni, Adriana (Roma), Ginster, Janusz (Berlin), Giorgio, Rossella (Wien), Guo, Shuchen (Oxford), Happ, Leon (Wien), Hudson, Thomas (Coventry), Knüpfer, Hans (Heidelberg), Kreisbeck, Carolin (Eichstätt), Kreutz, Leonard (Garching bei München), Kubin, Anna (Wien), Laux, Tim (Heidelberg), Mora, Maria Giovanna (Pavia), Murray, Ryan (Raleigh), Neukamm, Stefan (Dresden), Novaga, Matteo (Pisa), Orlando, Gianluca (Bari), Ortiz, Michael (Pasadena), Park, Sangmin (Pittsburgh), Ponsiglione, Marcello (Roma), Quattrocchi, Filippo (Klosterneuburg), Scardia, Lucia (Edinburgh), Schmidt, Bernd (Augsburg), Sheldon, Toby (Coventry), Stefanelli, Ulisse (Wien), Theil, Florian (Coventry), Thorpe, Matthew (Coventry), Tolotti, Edoardo Giovanni (Pavia), Wolfram, Marie-Therese (Coventry), Zeppieri, Caterina (Münster)



11.05. – 16.05.2025

Organizers:

Mathematical Advances in Geophysical Fluid Dynamics

Anne-Laure Dalibard, Paris

Peter Korn, Hamburg

Leslie M. Smith, Madison

Edriss S. Titi, Cambridge UK/College Station/Rehovot

Abstract

The workshop addressed recent advances in modeling, analytical, computational and stochastic studies of geophysical models. In particular addressed were atmosphere-, ocean- and sea-ice models, well-posedness and analysis of relevant geophysical fluid regimes and models, including stochastically forced equations, boundary layers as well as coupled models. A key feature of this workshop was bringing together leading experts from various communities and therefore from diverse scientific backgrounds such as analysis, modeling, numerics and computations as well as stochastic analysis.

Participants

Bardos, Claude (Paris), Bäumer, Daniel (Wien), Boutros, Daniel (Cambridge), Brandt, Felix (Berkeley), Brenier, Yann (Orsay), Constantin, Adrian (Wien), Cope, Laura (Exeter), Dalibard, Anne-Laure (Paris), Dingel, Stefan (Kassel), Dormy, Emmanuel (Paris), Early, Jeffrey (Seattle), Gallet, Basile (Gif-sur-Yvette), Gentil, Corentin (Paris), Guo, Yanqiu (Miami), Haziot, Susanna (Princeton), Hieber, Matthias (Darmstadt), Hu, Ruiiao (London), Hussein, Amru (Kassel), Huysmans, Lucas (Leipzig), Ibrahim, Slim (Victoria), Khouider, Boualem (Victoria), Klein, Rupert (Berlin), Korn, Peter (Hamburg), Kukavica, Igor (Los Angeles), Leblond, Antoine (Hamburg), Li, Jinkai (Guangzhou), Maekawa, Yasunori (Kyoto), Markfelder, Simon (Konstanz), Mehlmann, Carolin (Magdeburg), Niu, Dongjuan (Beijing), Oliver, Marcel (Ingolstadt), Otto, Felix (Leipzig), Roberti, Luigi (Wien), Smith, Leslie M. (Madison), Stechmann, Samuel N. (Madison), Street, Oliver (London), Székelyhidi Jr., László (Leipzig), Thery, Sophie (Augsburg), Thomas, Marita (Berlin), Titi, Edriss S. (Cambridge), Weber, Jörg (Wien), Wilke, Mathias (Halle / Saale), Yang, Da (Chicago)



18.05. – 23.05.2025

Organizers:

Enveloping Algebras and Geometric Representation Theory

Ghislain Fourier, Aachen

Iain Gordon, Edinburgh

Michela Varagnolo, Cergy-Pontoise

Milen Yakimov, Boston

Abstract

The workshop aimed to reflect the newest developments in the field of algebraic Lie theory. It brought together experts investigating algebraic Lie theory from the categorical, combinatorial, geometric and noncommutative viewpoints. In general, the talks during the workshop focused on structural results and connections to other areas of mathematics. The workshop featured 24 talks (19 long talks, 5 short talks), of which one was online.

Participants

Achar, Pramod N. (Baton Rouge), Arakawa, Tomoyuki (Kyoto), Bittmann, Lea (Strasbourg), Boixeda Alvarez, Pablo (Boston), Bouthier, Alexis (Paris), Braverman, Alexander (Toronto), Brochier, Adrien (Paris), Chari, Vyjayanthi (Riverside), Contu, Alessandro (Paris), Costa Cesari, Martina (Bologna), Creutzig, Thomas (Erlangen), Davison, Ben (Edinburgh), Dumanski, Ilya (Cambridge), Eberhardt, Jens (Bonn), Etingof, Pavel (Cambridge), Færgeman, Joakim (College Station), Fang, Xin (Aachen), Feigin, Evgeny (Tel Aviv), Finkelberg, Michael (Jerusalem), Fourier, Ghislain (Aachen), Fujita, Ryo (Kyoto), Gordon, Iain (Edinburgh), Halacheva, Iva (Boston), Heidersdorf, Thorsten (Newcastle upon Tyne), Hernandez, David (Paris), Iezzi, Giulia (Aachen), Kivinen, Oscar Salomon (Espoo), Lanini, Martina (Roma), Leclerc, Bernard (Caen), Liu, Henry (Chiba), Losev, Ivan (New Haven), Lusztig, George (Cambridge), Moreau, Anne (Orsay), Nehme, Jonas (Bonn), Nivedita, Nivedita (Oxford), Padurariu, Tudor (Paris), Qin, Fan (Beijing), Reineke, Markus (Bochum), Serganova, Vera V. (Berkeley), Shan, Peng (Beijing), Situ, Quan (Clermont-Ferrand), Soergel, Wolfgang (Freiburg i. Br.), Stroppel, Catharina (Bonn), Varagnolo, Michela (Cergy-Pontoise), Vasserot, Eric (Paris), Williams, Harold (Los Angeles), Williamson, Geordie (Sydney), Yakimov, Milen (Boston), Yang, Fang (Bonn), Yun, Zhiwei (Cambridge), Zhao, Weilong (Paris)



25.05. – 30.05.2025

Statistical Physics Out of Equilibrium: Quantitative Results and Universality

Organizers:

Hugo Duminil-Copin, Genève/Bures-sur-Yvette
Ana Patrícia Carvalho Gonçalves, Lisboa
Grégory Miermont, Lyon

Abstract

Over the last 30 years, there has been spectacular progress in deriving the hydrodynamic limits from stochastic interacting particle systems, and characterizing the fluctuations of locally conserved quantities around this limit. Many interesting results on the aforementioned topic have been derived from stochastic integrability, an approach relying on very specific combinatorial and algebraic properties of the underlying dynamics which allow deriving several scaling limits. However, a microscopic change on the dynamics can dramatically impact the macroscopic level. Microscopic perturbations can lead to evolution equations with a variety of behaviours and several universal anomalous laws can emerge, both in hydrodynamics and in fluctuations. More generally, understanding critical points where physical systems undergo phase transitions, and establishing that the phenomenology is described by universal mathematical objects that do not depend on the specific properties of the underlying microscopic dynamics, is a cornerstone of modern probability and mathematical physics.

Participants

Aizenman, Michael (Princeton), Barraquand, Guillaume (Paris), Blondel, Oriane (Villeurbanne), Bryc, Włodzimierz (Cincinnati), Busani, Ofer (Edinburgh), Cannizzaro, Giuseppe (Coventry), Cardoso, Pedro (Bonn), Carinci, Gioia (Modena), Carvalho Gonçalves, Ana Patrícia (Lisboa), Curien, Nicolas (Orsay), Dauvergne, Duncan (Toronto), Dembin, Barbara (Strasbourg), Duminil-Copin, Hugo (Bures-sur-Yvette), Erignoux, Clément (Villeurbanne), Faggionato, Alessandra (Roma), Ferrari, Patrik L. (Bonn), Fleurat, William (Orsay), Franceschini, Chiara (Modena), Funaki, Tadahisa (Beijing), Garban, Christophe (Lyon), Gwynne, Ewain (Chicago), Holden, Nina (New York), Jara, Milton (Rio de Janeiro), Kern, Julian (Berlin), Knizel, Alisa (New York), Kozma, Gady (Rehovot), Lammers, Piet (Paris), Le Gall, Jean-Francois (Orsay), Miermont, Grégory (Lyon), Miller, Jason P. (Cambridge), Occelli, Alessandra (Angers), Olla, Stefano (Paris), Perkowski, Nicolas (Berlin), Remenik, Daniel (Santiago), Ricciuti, Maria Chiara (London), Riera, Armand (Paris), Salez, Justin (Paris), Salvador, Beatriz (Lisboa), Sasada, Makiko (Tokyo), Sasamoto, Tomohiro (Tokyo), Schmid, Dominik (Augsburg), Schnee, Leander (Berlin), Schütz, Gunter M. (Jülich), Schweiger, Florian (Genève), Sheffield, Scott (Cambridge), Sly, Allan (Princeton), Sun, Xin (Beijing), Tassion, Vincent (Zürich), Tóth, Bálint (Budapest), Warzel, Simone (Garching bei München), Zygouras, Nikolaos (Coventry)



01.06. – 06.06.2025

Organizers:

Computational Group Theory

Bettina Eick, Braunschweig

Heiko Dietrich, Melbourne

Gabriele Nebe, Aachen

Colva Roney-Dougal, St. Andrews

Abstract

The workshop demonstrated the deep and interesting interactions between theoretical results and powerful practical algorithms in Computational Group Theory. It featured the introduction of the new computer algebra system OSCAR, which is expected to lead to a new generation of practical algorithms. The program consisted of four 50-minute survey talks, a total of twenty 20-minute research talks, and some 10-minute short talks. The short talks included talks by all Oberwolfach Leibniz Graduate Students, allowing these young students to present their current research to an international audience.

Participants

Bartholdi, Laurent (Villeurbanne), Breuer, Thomas (Aachen), Brooksbank, Peter A. (Lewisburg), Caprace, Pierre-Emmanuel (Louvain-la-Neuve), de Graaf, Willem A. (Povo), Detinko, Alla (Huddersfield), Dietrich, Heiko (Melbourne), Dona, Daniele (Budapest), Eberhard, Sean (Coventry), Eick, Bettina (Braunschweig), Fernandez Ayala, Oscar (Braunschweig), Fieker, Claus (Kaiserslautern), Flannery, Dane (Galway), Freedman, Saul (Fort Collins), Glasby, Stephen P. (Newcastle), Hofmann, Tommy (Siegen), Holt, Derek F. (Coventry), Horn, Max (Kaiserslautern), Hoyer, Linda (Aachen), Hulpke, Alexander (Fort Collins), Jefferson, Chris (Dundee), Korhonen, Mikko (Shenzhen, Guangdong Province), Lee, Melissa (Clayton), Leedham-Green, Charles R. (London), Linton, Steve (St. Andrews), Litterick, Alastair James (Colchester), Liu, Chris (Fort Collins), Lübeck, Frank (Aachen), Lux, Klaus (Tucson), Maglione, Joshua (Galway), Malle, Gunter (Kaiserslautern), Margolis, Leo (Madrid), Nebe, Gabriele (Aachen), Niemeyer, Alice (Aachen), O'Brien, Eamonn A. (Auckland), Pan, Eileen Xueyu (Coventry), Praeger, Cheryl E. (Crawley), Qiao, Youming (Sydney), Roney-Dougal, Colva (St. Andrews), Rossmann, Tobias (Galway), Roth, Marie (Kaiserslautern), Schweitzer, Pascal (Darmstadt), Stanojkovski, Mima (Povo), Voll, Christopher (Bielefeld), Waldecker, Rebecca (Halle / Saale), Wilson, James B. (Fort Collins), Wu, Peiran (St. Andrews)



15.06. – 20.06.2025

Organizers:

Recent Trends in Algebraic Geometry

Olivier Debarre, Paris

Gavril Farkas, Berlin

Rahul Pandharipande, Zürich

Claire Voisin, Paris

Abstract

Algebraic geometry has grown into a broad subject, with many different streams often advancing quite independently of each other. Nonetheless, important advances have often come from visionary applications of ideas in one part of the subject to another. This workshop brought together leaders and future leaders in different areas of the subject, centered on geometric methods or geometric problems. It also brought together groups from different regions of the globe, in order to bridge communities of different sorts, and help new ideas quickly spread throughout algebraic geometry. Some of the best freshly-minted algebraic geometers were deliberately invited, so that they could meet their peers from around the world and learn about different perspectives on the subject.

Participants

Abramovich, Dan (Providence), Alexandrou, Theodosios (Hannover), Aprodu, Marian (Bucharest), Barros, Ignacio (Antwerpen), Benoist, Olivier (Paris), Bottini, Alessio (Bonn), Canning, Samir (Zürich), Castravet, Ana-Maria (Versailles), Colombo, Elisabetta (Milano), Debarre, Olivier (Paris), de Cataldo, Mark A. (Stony Brook), Druel, Stéphane (Villeurbanne), Farkas, Gavril (Berlin), Gachet, Cécile (Bochum), Huybrechts, Daniel (Bonn), Iribar Lopez, Aitor (Zürich), Jelisiejew, Joachim (Warszawa), Klingler, Bruno (Berlin), Kuznetsov, Alexander (Moscow), Levine, Marc (Essen), Lin, Hsueh-Yung (Taipei), Macri, Emanuele (Orsay), Marian, Alina (Trieste), Mauri, Mirko (Palaiseau), Mazzon, Enrica (Regensburg), Melo, Margarida (Roma), Möller, Martin (Frankfurt am Main), Moreira, Miguel (Cambridge), Moretti, Federico (Stony Brook), Mukai, Shigeru (Kyoto), Mustata, Mircea (Ann Arbor), Oberdieck, Georg (Heidelberg), O'Grady, Kieran Gregory (Roma), Ortega, Angela (Berlin), Ottem, John Christian (Oslo), Pandharipande, Rahul (Zürich), Patakfalvi, Zolt (Lausanne), Popa, Mihnea (Cambridge), Ranganathan, Dhruv (Cambridge), Rizzo, Francesca (Paris), Rojas, Andrés (Barcelona), Schmitt, Johannes (Zürich), Schneider, Julia (Dijon), Schreieder, Stefan (Hannover), Shen, Junliang (New Haven), Shinder, Evgeny (Sheffield), Tamborini, Carolina (Essen), Tevelev, Jenia (Amherst), Totaro, Burt (Los Angeles), Verni, Matteo (Paris), Vial, Charles (Bielefeld), Voisin, Claire (Paris), Yin, Qizheng (Beijing)



22.06. – 27.06.2025

Organizers:

Non-Archimedean Geometry and Applications

Johannes Nicaise, Leuven/London

Peter Scholze, Bonn

Michael Temkin, Jerusalem

Annette Werner, Frankfurt a. M.

Abstract

The workshop focused on recent developments in non-Archimedean analytic geometry with various applications to other fields. The topics of the talks included foundational results on analytic spaces as well as applications to the local Langlands conjecture, p -adic cohomology theories, Shimura varieties, the non-Archimedean Simpson correspondence, and to questions on metrics in complex geometry, in the spirit of K -stability.

Participants

Andreychev, Grigory (Princeton), Anschütz, Johannes (Orsay), Aoki, Ko (Bonn), Berkovich, Vladimir (Rehovot), Biesbrouck, Tom (Leuven), Caraiani, Ana (London), Colmez, Pierre (Paris), Dauser, Adam Vincent Daigoro (Bonn), Dospinescu, Gabriel (Clermont-Ferrand), Ducros, Antoine (Paris), Esnault, Hélène (Berlin), Gee, Toby (London), Gerth, Lucas (Frankfurt am Main), Gilles, Sally (Essen), Groechenig, Michael (Toronto), Gubler, Walter (Regensburg), Hansen, David (Singapore), Hellmann, Eugen (Münster), Heuer, Ben (Frankfurt am Main), Hübner, Katharina (Frankfurt am Main), Ivancic, Jelena (Bonn), Jonsson, Mattias (Ann Arbor), Kern, Saskia (Darmstadt), Le Bras, Arthur-César (Strasbourg), Liu, Ruochuan (Beijing), Maex, Michael (Leuven), Mann, Lucas (Münster), Mihatsch, Andreas (Bonn), Miles, Jonathan (Frankfurt am Main), Nicaise, Johannes (Leuven), Niziol, Wiesława (Paris), Poineau, Jérôme (Caen), Rapoport, Michael (Bonn), Richarz, Timo (Darmstadt), Rodriguez Camargo, Juan Esteban (New York), Schneider, Peter (Münster), Scholze, Peter (Bonn), Temkin, Michael (Jerusalem), van den Hove, Thibaud (Darmstadt), Vezzani, Alberto (Milano), Viehmann, Eva (Münster), Wagner, Ferdinand (Bonn), Wedhorn, Torsten (Darmstadt), Werner, Annette (Frankfurt am Main), Wild, Ruth (Frankfurt am Main), Xu, Daxin (Beijing), Zavyalov, Bogdan (Princeton), Zhang, Mingjia (Princeton)



29.06. – 04.07.2025

Organizers:

Differentialgeometrie im Großen

Richard Bamler, Berkeley

Otis Chodosh, Stanford

Urs Lang, Zürich

Lu Wang, New Haven

Abstract

This workshop brought together researchers working in various areas of differential geometry, with an emphasis on problems that connect local geometric analysis with global structure and topology. Talks covered a broad range of topics, including geometric flows, scalar curvature, minimal surfaces, singular spaces, and large-scale geometric phenomena. While the methods and settings varied widely, a recurring theme was the use of analytic tools to understand spaces with curvature or topological constraints, especially in the presence of singularities. The format encouraged informal discussion and exchange of ideas across different subfields.

Participants

Bamler, Richard (Berkeley), Bernstein, Jacob (Baltimore), Besson, Gérard (Grenoble), Burkhardt-Guim, Paula (Stony Brook), Chen, Shuli (Chicago), Chodosh, Otis (Stanford), Choi, Beomjun (Pohang), Choi, Kyeongsu (Seoul), Deruelle, Alix (Orsay), Edelen, Nick (Notre Dame), Franceschini, Federico (Princeton), Franz, Giada (Marne-la-Vallée), Hallgren, Max (New Brunswick), Hanke, Bernhard (Augsburg), Haslhofer, Robert (Toronto), Herschkovits, Or (Jerusalem), Jäckel, Frieder (Bonn), Ketover, Daniel (New Brunswick), Kleiner, Bruce (New York), Lai, Yi (Irvine), Lang, Urs (Zürich), LeBrun, Claude (Stony Brook), Li, Yang (Cambridge), Li, Yangyang (Chicago), Lotay, Jason D. (Oxford), Lott, John (Berkeley), Lytchak, Alexander (Karlsruhe), Mäder-Baumdicker, Elena (Darmstadt), Marx-Kuo, Jared (Houston), Meier, Damaris (Fribourg), Minter, Paul (Cambridge), Park, Jiewon (Daejeon), Sabourau, Stephane (Créteil), Saez Trumper, Mariel (Santiago), Schulze, Felix (Coventry), Semola, Daniele (Wien), Simon, Miles (Magdeburg), Skorobogatova, Anna (Zürich), Stadler, Stephan (Bonn), Stryker, Douglas (Princeton), Tony, Thomas (Potsdam), Wang, Lu (New Haven), Wang, Zhichao (Shanghai Shi), Wenger, Stefan (Fribourg), White, Brian (Stanford), Wilking, Burkhard (Münster), Wu, Yujie (Stanford), Xu, Kai (Durham), Zeidler, Rudolf (Potsdam), Zhou, Xin (Ithaca), Ilmanen, Tom (Zürich)



06.07. – 11.07.2025

Organizers:

Dynamische Systeme

Marie-Claude Arnaud, Paris

Sylvain Crovisier, Paris

Umberto Hryniewicz, Aachen

Michael Hutchings, Berkeley

Abstract

The workshop focused on recent advances and developments in dynamical systems, with particular attention to Hamiltonian systems and symplectic geometry. Areas covered included symplectic dynamics and geometry, billiards, celestial mechanics, spectral rigidity, partial hyperbolicity, ergodic theory, dynamical convexity and Floer theory. Additional areas of dynamical systems were also represented. Special emphasis was placed on rigidity problems, periodic and connecting orbits.

Participants

Abbondandolo, Alberto (Bochum), Alvarez, Sebastien (Montevideo), Baldomá Barraca, Immaculada (Barcelona), Berger, Pierre (Paris), Bramham, Barney (Bochum), Butt, Karen (Chicago), Cardona, Robert (Barcelona), Cieliebak, Kai (Augsburg), Colin, Vincent (Nantes), Crovisier, Sylvain (Orsay), Datta, Ipsita (Zürich), Edtmair, Oliver (Zürich), Florio, Anna (Paris), Frauenfelder, Urs Adrian (Augsburg), Geiges, Hansjörg (Köln), Ginzburg, Viktor L. (Santa Cruz), Giralt, Mar (Paris), Gogolyev, Andrey (Columbus), Guardia Munarriz, Marcel (Barcelona), Gurel, Basak (Orlando), Haim-Kizlev, Pazit (Princeton), Hofer, Helmut W. (Princeton), Hryniewicz, Umberto L. (Aachen), Hutchings, Michael (Berkeley), Jäger, Tobias (Jena), Knieper, Gerhard (Bochum), Le Calvez, Patrice (Paris), Lefeuvre, Thibault (Paris), Leguil, Martin (Palaiseau), Maderna, Ezequiel (Montevideo), Maier, Levin (Heidelberg), Masci, Leonardo (Aachen), Moreno, Agustin (Heidelberg), Nardi, Alessandra (Padova), Nelson, Jo (Houston), Potrie, Rafael (Montevideo), Salomão, Pedro A. S. (Shenzhen, Guangdong Province), Schuback, Nelson (Paris), Seara, Tere (Barcelona), Sorrentino, Alfonso (Roma), Suhr, Stefan (Bochum), van Koert, Otto (Seoul), Viterbo, Claude M. (Orsay), Zhang, Zhiyuan (London), Zung, Jonathan (Cambridge)



13.07. – 18.07.2025

Organizers:

Real Analysis, Harmonic Analysis, and Applications

Michael Christ, Berkeley

Larry Guth, Cambridge MA

Lillian Pierce, Durham

Christoph Thiele, Bonn

Abstract

This workshop in real and harmonic analysis surveyed recent investigations in areas including geometric measure theory and restriction theory, multiple ergodic averages, local smoothing estimates, Schrödinger and Hörmander-type oscillatory integral operators, multilinear estimates and analysis on the Hamming cube. In particular, the workshop emphasized the recent solutions of two longstanding problems: the Kakeya phenomenon in dimension three, and almost everywhere convergence of long time averages associated to multiple commuting measure-preserving transformations. The methods presented during the workshop have yielded applications in ergodic theory, number theory, and computer science.

Participants

Alexis, Michel (Bonn), Becker, Lars (Bonn), Beltran, David (Bourjassot), Bennett, Jonathan (Birmingham), Blair, Matthew (Albuquerque), Carbery, Anthony (Edinburgh), Christ, Michael (Berkeley), Durcik, Polona (Orange), Fraccaroli, Marco (Bilbao, Bizkaia), Frey, Dorothee (Karlsruhe), Gonzalez-Riquelme, Cristian (Bellaterra, Barcelona), Greenfeld, Rachel (Evanston), Gressman, Philip (Philadelphia), Guo, Shaoming (Tianjin), Guth, Larry (Cambridge), Hickman, Jonathan (Edinburgh), Hytönen, Tuomas (Aalto), Iliopoulou, Marina (Athens), Ivanisvili, Paata (Irvine), Katz, Nets Hawk (Houston), Kovac, Vjekoslav (Zagreb), Li, Zane (Raleigh), Lin, Fred (Bonn), Maldague, Dominique (Cambridge), Mirek, Mariusz (Piscataway), Müller, Detlef (Kiel), Niedorf, Lars (Madison), Oh, Changkeun (Seoul), Oliveira e Silva, Diogo (Lisboa), Ortiz, Alexander (Houston), Ou, Yumeng (Philadelphia), Pierce, Lillian Beatrix (Durham), Pramanik, Malabika (Vancouver), Raz, Orit (Jerusalem), Ren, Kevin (Princeton), Roos, Joris (Lowell), Saari, Olli (Barcelona), Seeger, Andreas (Madison), Shiraki, Shobu (Zagreb), Slavikova, Lenka (Praha), Sogge, Christopher D. (Baltimore), Srivastava, Rajula (Madison), Stovall, Betsy (Madison), Volberg, Alex (East Lansing), Wang, Hong (New York), Wooley, Trevor D. (West Lafayette), Wright, James R. (Edinburgh), Wu, Shukun (Bloomington), Yung, Po-Lam (Canberra), Zahl, Joshua (Tianjin), Zhang, Ruixiang (Berkeley)



20.07. – 25.07.2025

Organizers:

Partial Differential Equations

Ailana Fraser, Vancouver

Xavier Ros Oton, Barcelona

Felix Schulze, Coventry

Abstract

This workshop "Partial Differential Equations" focused on nonlinear elliptic and parabolic partial differential equations, touching topics such as geometric flows, geometric variational problems and minimal surfaces, free boundaries, and geometric measure theory. The meeting was attended by 48 participants with broad geographic representation. The program consisted of 22 talks and left sufficient time for discussions.

Participants

Bellettini, Costante (London), Buzano, Reto (Torino), Caldini, Gianmarco (Trento), Cao-Labora, Gonzalo (New York), Carlotto, Alessandro (Povo), Chambolle, Antonin (Paris), Choi, Kyeongsu (Seoul), Cogo, Albachiara (Tübingen), Daniels-Holgate, Joshua (London), Deruelle, Alix (Orsay), Engelstein, Max (Minneapolis), Fernandez, Antonio J. (Madrid), Frank, Rupert L. (München), Fraser, Ailana M. (Vancouver), Friedman, Benjamin (Vancouver), Hirsch, Jonas (Leipzig), Huiskens, Gerhard (Tübingen), Koch, Herbert (Bonn), Lamm, Tobias (Karlsruhe), Lavoyer, Lucas (Münster), Lee, Man-Chun (Shatin, N.T., Hong Kong), Lee, Tang-Kai (Cambridge), Loher, Amélie (Cambridge), Maggi, Francesco (Austin), Mantoulidis, Christos (Houston), Medina de la Torre, Maria (Madrid), Minter, Paul (Cambridge), Mooney, Connor (Irvine), Musso, Monica (Bath), Otto, Felix (Leipzig), Rivière, Tristan (Zürich), Ros Oton, Xavier (Barcelona), Rupflin, Melanie (Oxford), Schulze, Felix (Coventry), Sesum, Natasa (Piscataway), Skorobogatova, Anna (Zürich), Spolaor, Luca (San Diego), Stephan, Paul (Konstanz), Stryker, Douglas (Princeton), Topping, Peter M. (Coventry), Torres-Latorre, Clara (Madrid), Wang, Guofang (Freiburg i. Br.), Wang, Zhihan (Ithaca), Weiss, Georg S. (Essen), West, Alexander (Bonn), Weth, Tobias (Frankfurt am Main), Wilking, Burkhard (Münster), Zhao, Zihui (Baltimore)



27.07. – 01.08.2025

Organizers:

Subfactors and Applications

Dietmar Bisch, Nashville

Terry Gannon, Edmonton

Yasuyuki Kawahigashi, Tokyo

Yoshiko Ogata, Tokyo/Kyoto

Abstract

The theory of subfactors plays an important role in the discovery and analysis of quantum symmetries that seem to be ubiquitous in mathematics and physics. Subfactors profoundly interact with a wide range of different areas such as quantum topology, vertex operator algebras, quantum groups, free probability theory, quantum computing and quantum information theory, quantum field theory, conformal field theory, tensor categories, condensed matter physics, and, of course, operator algebras. The aim of this workshop was to bring together an international group of researchers from these fields to disseminate recent results and to stimulate new collaborations. The focus was on operator algebraic, vertex operator algebraic and categorical aspects of quantum symmetries and their applications to open questions in mathematical physics. A substantial group of young mathematicians attended the workshop and were given the opportunity to present their work.

Participants

Bisch, Dietmar H. (Nashville), Caceres Gonzales, Julio (Nashville), Carpi, Sebastiano (Roma), Correa da Silva, Ricardo (Erlangen), Creutzig, Thomas (Erlangen), Delaney, Colleen (West Lafayette), Demirdilek, Max (Hamburg), Edie-Michell, Cain (Durham), Evans, David E. (Cardiff), Gannon, Terry J. (Edmonton), Giron Pacheco, Sergio (Leuven), Grossman, Pinhas (Sydney), Gui, Bin (Beijing), Haah, Jeongwan (Stanford), Henriques, André G. (Oxford), Hernández Palomares, Roberto (Waterloo), Hollands, Stefan (Leipzig), Huston, Peter (Nashville), Izumi, Masaki (Kyoto), Johnson-Freyd, Theo (Halifax), Jones, Corey M. (Raleigh), Kawahigashi, Yasuyuki (Tokyo), Kjær, Boris (København), Lechner, Gandalf (Erlangen), Lim, Junhwi (Nashville), Liu, Zhengwei (Beijing), McRae, Robert H. (Beijing), Meusburger, Catherine (Erlangen), Möller, Sven (Hamburg), Naaijken, Pieter (Cardiff), Ogata, Yoshiko (Kyoto), Ostrik, Viktor (Eugene), Penneys, David (Columbus), Peters, Emily (Chicago), Plavnik, Julia (Bloomington), Reutter, David (Hamburg), Riesen, Andrew (Cambridge), Ros Camacho, Ana (Cardiff), Runkel, Ingo (Hamburg), Sato, Futaba (Tokyo), Schopieray, Andrew (Milwaukee), Schweigert, Christoph (Hamburg), Snyder, Noah (Bloomington), Tener, James (Acton), Verstraete, Frank (Cambridge), Wallick, Daniel (Columbus), Wendland, Katrin (Dublin), Wenzl, Hans (La Jolla), Wolf, Ramona (Siegen), Xu, Feng (Riverside), Yamashita, Makoto (Oslo)



03.08. – 08.08.2025

Organizers:

C*-Algebras

Adrian Ioana, La Jolla

Dimitri Shlyakhtenko, Los Angeles

Andreas Thom, Dresden

Wilhelm Winter, Münster

Abstract

The subject of operator algebras is a very active area of mathematics which, since its inception in the 1940s, has always been driven by interactions with other fields of mathematics and physics. The scope of these interactions is very wide, ranging over dynamical systems, (non-commutative) geometry, functional analysis, (geometric) group theory, topology, random matrices, harmonic analysis and quantum information theory. The goals of this workshop were to stimulate new collaborations across these fields of mathematics, to disseminate recent progress by giving participants a global view on the subject and to specially focus on several important developments, including progress on Connes' rigidity conjecture for property (T) groups, a deeper understanding of the analogs of group boundaries in both C* and von Neumann algebra theory, C*-simplicity and selflessness of groups, and progress in (equivariant) classification of C*-algebras.

Participants

Arzhantseva, Goulmira N. (Wien), Chifan, Ionut (Iowa City), Courtney, Kristin (Odense), Dadarlat, Marius (West Lafayette), de Laat, Tim (Kiel), de la Salle, Mikael (Lyon), Donvil, Milan (Heverlee), Eilers, Søren (København), Farah, Ilijas (Toronto, Ontario), Fernandez I Quera, Adriana (Iowa City), Gabe, James (Odense), Geffen, Shirly (Münster), Hayes, Benjamin R. (Charlottesville), Hirshberg, Ilan (Beer-Sheva), Horbez, Camille (Orsay), Hua, Shanshan (Oxford), Ioana, Adrian (La Jolla), Izumi, Masaki (Kyoto), Jekel, David (København), Junge, Marius (Urbana), Kennedy, Matthew (Waterloo), Kerr, David (Münster), Kopsacheilis, Grigoris (Münster), Larsen, Nadia S. (Oslo), Li, Xin (Glasgow), Marrakchi, Amine (Lyon), Musat, Magdalena E. (København), Ozawa, Narutaka (Kyoto), Patchell, Gregory (La Jolla), Peterson, Jesse D. (Waterloo), Pi, Jennifer (Oxford), Popa, Sorin (Los Angeles), Raum, Sven (Potsdam), Rordam, Mikael (København), Schafhauser, Christopher (Lincoln), Shlyakhtenko, Dimitri (Los Angeles), Shulman, Tatiana (Göteborg), Sibbel, Philipp (Münster), Speicher, Roland (Saarbrücken), Strung, Karen (Praha), Szabo, Gabor (Leuven), Thom, Andreas B. (Dresden), Tikuisis, Aaron (Ottawa), Vaes, Stefaan (Leuven), Vigdorovich, Itamar (La Jolla), White, Stuart (Oxford), Willett, Rufus E. (Honolulu), Winter, Wilhelm (Münster)



10.08. – 15.08.2025

Organizers:

Algebraic K-theory

Hélène Esnault, Berlin

Thomas Geisser, Tokyo

Lars Hesselholt, Copenhagen

Moritz Kerz, Regensburg

Abstract

Algebraic K-theory is a generalization of linear algebra to rings and to geometric objects, leading to numerous applications across various mathematical fields. It plays a crucial role in number theory, algebraic and geometric topology, algebraic geometry, and analysis. Moreover, algebraic K-theory is intimately connected with motivic cohomology and motivic homotopy theory, which provide a deeper structural understanding of algebraic K-groups. Recent advancements in the field have been significantly driven by the algebraic calculus of ∞ -categories. This abstract framework has yielded substantial benefits, including applications to p-adic Hodge theory through the computation of p-adic K-theory and the utilization of trace methods, which effectively linearize algebraic K-theory. The perspective of stable ∞ -categories has also enhanced our understanding of algebraic K-theory with respect to various localization constructions. Furthermore, algebraic K-theory has made remarkable contributions to stable homotopy theory, notably in relation to the telescope conjecture.

Participants

Antieau, Benjamin (Evanston), Aoki, Ko (Bonn), Artusa, Marco (Strasbourg), Ayoub, Joseph (Zürich), Bachmann, Tom (Mainz), Binda, Federico (Milano), Bouis, Tess (Regensburg), Burklund, Robert (København), Cisinski, Denis-Charles (Regensburg), Cortinas, Guillermo (Buenos Aires), Dahlhausen, Christian (Heidelberg), Elmanto, Elden (Toronto), Esnault, Hélène (Berlin), Flach, Matthias (Pasadena), Gazaki, Evangelia (Charlottesville), Geisser, Thomas H. (Tokyo), Hebestreit, Fabian (Bielefeld), Hesselholt, Lars (København), Hornbostel, Jens (Wuppertal), Hoyois, Marc (Regensburg), Iwasa, Ryomei (Orsay), Kelly, Shane (Tokyo), Kerz, Moritz (Regensburg), Konovalov, Andrei (Essen), Krause, Achim (Oslo), Land, Markus (München), Levine, Marc (Essen), Levy, Ishan (København), Mann, Lucas (Münster), Mantovani, Lorenzo (Mainz), Mathew, Akhil (Chicago), Morin, Adrien (København), Morin, Baptiste (Talence), Morrow, Matthew (Orsay), Østvær, Paul Arne (Milano), Picard, Vivien (Wuppertal), Ramzi, Maxime (Münster), Ravi, Charanya (Mumbai), Röndigs, Oliver (Osnabrück), Rülling, Kay (Wuppertal), Scholbach, Jakob (Padova), Sosnilo, Vladimir (Regensburg), Spitzweck, Markus (Osnabrück), Tamme, Georg (Mainz), Tang, Longke (Princeton), Terenzi, Luca (Lyon), Wagner, Ferdinand (Bonn), Wang, Guozhen (Shanghai Shi), Wickelgren, Kirsten G. (Durham), Yakerson, Maria (Paris), Zakharevich, Inna (Ithaca)



17.08. – 22.08.2025

Organizers:

Computation and Learning in High Dimensions

Markus Bachmayr, Aachen

Albert Cohen, Paris

Angela Kunoth, Köln

Olga Mula, Eindhoven

Abstract

Computations with functions depending on a large numbers of variables are at the core of many problems in science and engineering. They arise naturally in physical models described by PDEs depending on many parameters. Traditionally, dealing with high dimensionality was avoided by the use of simplified models. With the availability of more computational power and the development of sophisticated approximation schemes and algorithms such tasks are increasingly treated directly on the basis of general mathematical principles. The naive use of classical approximation methods typically leads to computational costs that scale exponentially with respect to the dimension. To make computations tractable, nonlinear strategies that leverage in more subtle ways inherent properties of the problem are inevitably required. In recent years, many approaches have emerged from different fields. This workshop aimed to deepen the mathematical foundations of the underlying numerical concepts and to promote the exchange of ideas arising from various disciplines.

Participants

Bachmayr, Markus (Aachen), Binev, Peter (Columbia), Bon, Daan (Eindhoven), Brockmann, Max (Köln), Cohen, Albert (Paris), Dahmen, Wolfgang (Columbia), Dolbeault, Matthieu (Aachen), Dussan, Geneviève (Besançon), Ehrlicher, Virginie (Marne-la-Vallée), Eisenmann, Henrik (Aachen), Faldum, Manfred (Aachen), Feischl, Michael (Wien), Gonnella, Isabella Carla (Trieste), Granzow, Margarita (Köln), Grasedyck, Lars (Aachen), Grohs, Philipp (Wien), Guignard, Diane (Ottawa), Harbrecht, Helmut (Basel), Kunoth, Angela (Köln), Kuo, Frances Y. (Sydney), Lindsey, Michael (Berkeley), Mhaskar, Hrushikesh N. (Claremont), Mula, Olga (Eindhoven), Multerer, Michael (Lugano), Neugebauer, Marcel (Köln), Nickl, Richard (Cambridge), Nielen, Evie (Eindhoven), Nobile, Fabio (Lausanne), Nouy, Anthony (Nantes), Nuyens, Dirk (Leuven), Ortner, Christoph (Vancouver), Oster, Mathias (Aachen), Oswald, Peter (Bonn), Peletier, Mark A. (Eindhoven), Penka, Maximilian (Garching bei München), Poon, Clarice (Coventry), Scheichl, Robert (Heidelberg), Schmidt-Hieber, Johannes (Enschede), Schneider, Reinhold (Berlin), Schwab, Christoph (Zürich), Siegel, Jonathan W. (College Station), Somacal, Agustin (Nantes), Teckentrup, Aretha (Edinburgh), Tikko, Janina (Köln), Ullmann, Elisabeth (Garching bei München), Ullrich, Mario (Linz), Urban, Karsten (Ulm), Voigtlaender, Felix (Ingolstadt), Yilmaz, Tolunay (Wien)



24.08. – 29.08.2025

**Cohomology Theories for Automorphic Forms
and Enumerative Algebra**

Organizers:

Claudia Alfes, Bielefeld
YoungJu Choie, Pohang
Anke Pohl, Bremen
Christopher Voll, Bielefeld

Abstract

Cohomology theories have long proven to be powerful, unifying tools in numerous areas of mathematics, specifically in algebra, geometry, and number theory. Historically, the invention of the “right” cohomology theory often proved to be the key to uniform, conceptual proofs of conjectures and explanations of heuristic phenomena, bringing together seemingly unrelated mathematical areas. This workshop concentrated on the areas of automorphic forms and enumerative algebra, two fields in which cohomology theories already had a particular impact. It brought together mathematicians from various subdirections of these areas, both junior and senior.

Participants

Alfes, Claudia (Bielefeld), Assing, Edgar (Bonn), Bogo, Gabriele (Bielefeld), Bruggeman, Roelof W. (Utrecht), Choie, YoungJu (Pohang City), Diamantis, Nikolaos (Nottingham), Funke, Jens (Durham), Im, Bo-Hae (Daejeon), Kiefer, Paul (Antwerp), Kim, Dohyeong (Seoul), Klüver, Jan (Bremen), Lee, Jungwon (Bonn), Lee, Min (Bristol), Li, Winnie (University Park), Maglione, Joshua (Galway), Marchionna, Bianca (Heidelberg), Miatello, Roberto J. (Córdoba), Pohl, Anke (Bremen), Ramesh, Lakshmi (Bielefeld), Raum, Martin (Göteborg), Risager, Morten S. (København), Rossmann, Tobias (Galway), Schmutz, Alec (Bielefeld), Stanojkovski, Mima (Povo), Voll, Christopher (Bielefeld)



24.08. – 29.08.2025

Stein's Method in Stochastic Geometry, Statistical Learning, and Optimisation

Organizers:

Krishnakumar Balasubramanian, Davis
Murat A. Erdogdu, Toronto
Larry Goldstein, Los Angeles
Gesine Reinert, Oxford

Abstract

Stein's method, a powerful tool rooted in probability and stochastic analysis, has recently showcased its efficacy in addressing diverse challenges encountered in deep learning, optimisation, sampling, and causal inference. The primary focus of the workshop is to strengthen the probabilistic and analytic foundations of Stein's method, while simultaneously exploring novel avenues for its application. Bringing together researchers from the analysis, probability, statistics, and machine learning communities, who share a common interest in Stein's method, the workshop aims to facilitate idea exchange, tackle open problems, and foster collaborations to advance the forefront of knowledge in these fields. Of particular importance is the emphasis placed on the intersection of these disciplines, where Stein's method plays a pivotal role.

Participants

Austern, Morgane (Cambridge), Bhattacharjee, Chinmoy (Hamburg), Chen, Louis H. Y. (Singapore), Döring, Hanna (Osnabrück), Eichelsbacher, Peter (Bochum), Erdogdu, Murat A. (Toronto), Fang, Xiao (Shatin, N.T., Hong Kong), Fathi, Max (Paris), Fischer, Adrian (Oxford), Goldstein, Larry (Los Angeles), Nüsken, Nikolas (London), Peköz, Erol (Oakland), Reinert, Gesine (Oxford), Röllin, Adrian (Singapore), Ross, Nathan (Melbourne), Saumard, Adrien (Bruz), Schulte, Matthias (Hamburg), Strotmann, Anna (Osnabrück), Swan, Yvik (Bruxelles), Trauthwein, Tara (Oxford), Wirth, Leoni Carla (Göttingen), Xu, Wenkai (Coventry), Yukich, Joseph E. (Bethlehem)



31.08. – 05.09.2025

Organizers:

Large Scale Stochastic Dynamics

Pietro Caputo, Roma

Fabio Toninelli, Vienna

Bálint Tóth, Bristol/Budapest

Abstract

The goal of this workshop was to explore the recent advances in the mathematical understanding of the macroscopic properties which emerge on large space-time scales from interacting microscopic particle systems. The talks addressed the following topics: stochastic homogenization, hydrodynamic limits, Markov chain mixing times, superdiffusivity in out-of-equilibrium 2-dimensional systems, random walks in random environments.

Participants

Andreis, Luisa (Milano), Balázs, Márton (Bristol), Bella, Peter (Dortmund), Ben-Hamou, Anna (Paris), Biskup, Marek (Los Angeles), Blondel, Oriane (Villeurbanne), Bodineau, Thierry (Bures-sur-Yvette), Bolthausen, Erwin (Zürich), Cannizzaro, Giuseppe (Coventry), Caputo, Pietro (Roma), Caravenna, Francesco (Milano), Chen, Yuansi (Zürich), Dagallier, Benoit (Paris), Dumaz, Laure (Paris), Elboim, Dor (Stanford), Erignoux, Clément (Villeurbanne), Faggionato, Alessandra (Roma), Fehrman, Benjamin (Baton Rouge), Ganguly, Shirshendu (Berkeley), Gantert, Nina (Garching bei München), Gheissari, Reza (Evanston), Giles, Harry (Coventry), Hartarsky, Ivailo (Villeurbanne), Keliger, Daniel (Budapest), Köppl, Jonas (Berlin), Kozma, Gady (Rehovot), Landim, Claudio (Rio de Janeiro), Lemming, Friederike (Dortmund), Maga, Balazs (Budapest), Massoulié, Brune (Paris), Mathieu, Pierre (Marseille), Morellini, Mario (Roma), Moulard, Quentin (Wien), Ocella, Alessandra (Angers), Ott, Sébastien (Lausanne), Otto, Felix (Leipzig), Quattropiani, Matteo (Roma), Ráth, Balázs (Budapest), Sabot, Christophe (Villeurbanne), Sasada, Makiko (Tokyo), Sau, Federico (Milano), Schmid, Dominik (Augsburg), Sethuraman, Sunder (Tucson), Shapira, Assaf (Paris), Simon, Marielle (Villeurbanne), Sousi, Perla (Cambridge), Stauffer, Alexandre (London), Toninelli, Cristina (Paris), Toninelli, Fabio (Wien), Tóth, Bálint (Budapest), Valko, Benedek (Madison), Velenik, Yvan (Genève), Vető, Bálint (Budapest), Virág, Bálint (Toronto), Wagner, Christian (Klosterneuburg), Zeitouni, Ofer (Rehovot), Zygouras, Nikolaos (Coventry)



07.09. – 12.09.2025

Organizers:

New Mathematical Directions in Coding Theory

Noga Ron-Zewi, Haifa

Mary Wootters, Stanford

Abstract

Coding theory is concerned with the design and analysis of error-correcting codes, a method for protecting data from noise or corruption. In addition to their wide practical applicability, error-correcting codes are also supported by a rich theory, with connections to diverse disciplines in mathematics, science, and engineering. This workshop focused on exciting mathematical methods in the design of error-correcting codes, including high-dimensional expanders, convex optimization, and structured random ensembles. These methods have led to recent breakthroughs in coding theory. The goal of this workshop was to bring together researchers from multiple communities to exchange ideas around these and other mathematical techniques, hopefully leading to further advances.

Participants

Banerjee, Anisha (München), Barg, Alexander (College Park), Bossert, Martin (Ulm), Cheng, Kuan (Beijing), Cheraghchi, Mahdi (Ann Arbor), Cohen, Gil (Tel Aviv), Con, Roni (Haifa), Dikstein, Yotam (Princeton), Doron, Dean (Beer-Sheva), Efremenko, Klim (Beer-Sheva), Gelles, Ran (Ramat-Gan), Golowich, Louis (Berkeley), Granha Jeronimo, Fernando (Urbana), Guo, Zeyu (Columbus), Guruswami, Venkatesan (Berkeley), Harsha, Prahladh (Mumbai), Hu, Sihuang (Jinan, Shandong), Kol, Gillat (Princeton), Kopparty, Swastik (Toronto), Kurz, Sascha (Bayreuth), Li, Ray (Santa Clara), Li, Xin (Baltimore), Liu, Hedongliang (Karlsruhe), Liu, Siqi (Durham), López, Hiram H. (Blacksburg), Manohar, Peter (Princeton), Matthews, Gretchen (Blacksburg), Mosheiff, Jonathan (Beer-Sheva), Putterman, Aaron (Boston), Resch, Nicolas (Amsterdam), Ron-Zewi, Noga (Haifa), Saraf, Shubhangi (Toronto), Sauerbier Couvée, Hugo (München), Schmidhuber, Alexander (Cambridge), Shaltiel, Ronen (Haifa), Shangquan, Chong (Qingdao), Shpilka, Amir (Tel Aviv), Silbak, Jad (Boston), Srivastava, Shashank (New Brunswick), Sudan, Madhu (Boston), Tamo, Itzhak (Ramat Aviv, Tel Aviv), Ta-Shma, Amnon (Tel Aviv), Tulsiani, Madhur (Chicago), Wang, Hsin-Po (Taipei), Willems, Wolfgang (Magdeburg), Wootters, Mary (Palo Alto), Yankovitz, Tal (Ramat Aviv, Tel Aviv), Yehezkeally, Yonatan (Newcastle upon Tyne), Zemor, Gilles (Talence), Zhang, Rachel (Cambridge), Zhang, Zihan (Columbus)



14.09. – 19.09.2025

Organizers:

Combinatorics, Probability and Computing

Robert Morris, Rio de Janeiro

Oliver Riordan, Oxford

Lisa Sauermann, Bonn

Abstract

The main theme of the workshop was the use of probabilistic methods in combinatorics and related fields. This area is evolving extremely quickly, with the introduction of powerful new methods and the development of increasingly sophisticated techniques, and there have been a number of very significant breakthroughs in the area in recent years. The workshop emphasized several of these recent breakthroughs, which include foundational results in the theory of random graphs and processes, and also applications of probabilistic techniques in Ramsey theory, design theory, and group theory, and of combinatorial techniques to problems in number theory, functional analysis, and high-dimensional geometry.

Participants

Alon, Noga (Princeton), Axenovich, Maria (Karlsruhe), Böttcher, Julia (London), Bradac, Domagoj (Lausanne), Bucić, Matija (Princeton), Campos, Marcelo (Rio de Janeiro), Conlon, David (Pasadena), Delcourt, Michelle (Toronto), Fox, Jacob (Stanford), Glock, Stefan (Passau), Heckel, Annika (Uppsala), Hunter, Zach (Zürich), Janzer, Oliver (Cambridge), Jenssen, Matthew (London), Joos, Felix (Heidelberg), Kamcev, Nina (Zagreb), Keevash, Peter (Oxford), Krivelevich, Michael (Ramat Aviv, Tel Aviv), Kühn, Marcus (Bonn), Kwan, Matthew (Klosterneuburg), Letzter, Shoham (London), Liebenau, Anita (Sydney), Lim, Jeck (Pasadena), Mattheus, Sam (Bruxelles), Mattos, Leticia (Heidelberg), Michelen, Marcus (Chicago), Mond, Adva (London), Montgomery, Richard (Coventry), Morris, Robert (Rio de Janeiro), Mubayi, Dhruv (Chicago), Nenadov, Rajko (Auckland), Panagiotou, Konstantinos (München), Park, Jinyoung (New York), Perkins, Will (Atlanta), Pham, Huy Tuan (Pasadena), Pokrovskiy, Alexey (London), Riordan, Oliver (Oxford), Sahasrabudhe, Julian (Cambridge), Samotij, Wojciech (Ramat Aviv, Tel Aviv), Sankar, Maya (Stanford), Sauermann, Lisa (Bonn), Sawhney, Mehtaab (New York City), Schacht, Mathias (Hamburg), Scott, Alex (Oxford), Sudakov, Benjamin (Zürich), Szabó, Tibor (Berlin), Tiba, Marius (London), Verstraete, Jacques (La Jolla), Wigderson, Yuval (Zürich), Yepremyan, Liana (Atlanta)



28.09. – 03.10.2025

Organizers:

Singularities

Javier Fernandez de Bobadilla, Bilbao

François Loeser, Paris

András Némethi, Budapest

Duco van Straten, Mainz

Abstract

Singularity theory concerns local and global structure of singularities of algebraic varieties and maps, often focusing on the interplay between algebraic geometry, symplectic topology, algebra, combinatorics, etc. The meeting gathered 47 participants representing a broad spectrum of interests, which was a great incentive to exchange ideas and establish new collaborations. Several talks focused around the themes of mirror symmetry, proposing deep and somewhat mysterious connections between complex and symplectic geometry, homological algebra, etc., which arise from studying singularities and their invariants.

Participants

A'Campo, Norbert (Basel), Avdek, Russell (Paris), Burban, Igor (Paderborn), Cho, Cheol-Hyun (Seoul), Cluckers, Raf (Villeneuve d'Ascq), Comte, Georges (Le Bourget-du-Lac), de Fernex, Tommaso (Salt Lake City), de la Bodega, Javier (Leuven), de Lorenzo Poza, Eduardo (Leuven), Dirks, Bradley (Stony Brook), Docampo, Roi (Norman), Faber, Eleonore (Graz), Fantechi, Barbara (Trieste), Fernandez de Bobadilla de Olazabal, Javier (Bilbao, Bizkaia), Forey, Arthur (Villeneuve d'Ascq), Halupczok, Immanuel (Düsseldorf), Hof, Alexander (Budapest), Kalck, Martin (Graz), Kovács, Sándor J (Seattle), Kubasch, Alexander Arnd (Budapest), Le, Quy Thuong (Hanoi), Lehn, Manfred (Mainz), Lekili, Yanki (London), Loeser, François (Paris), Lönne, Michael (Bayreuth), Maxim, Laurentiu-G. (Madison), Mazzon, Enrica (Paris), Némethi, András (Budapest), Nguyen, Kien Huu (Leuven), Ohmoto, Toru (Tokyo), Palka, Karol (Warszawa), Pallarés, Irma (Santander), Parusinski, Adam (Nice), Pełka, Tomasz (Warszawa), Pe Pereira, Maria (Madrid), Plamenevskaya, Olga (Stony Brook), Portilla Cuadrado, Pablo (Madrid), Romano-Velázquez, Agustín (Cuernavaca Morelos), Ruddat, Helge (Stavanger), Scheffler, Gergo (Budapest), Schürmann, Jörg (Münster), Sigurdsson, Baldur (Madrid), Takahashi, Atsushi (Osaka), van Straten, Duco (Mainz), Walker, Mark (Lincoln), Wyss, Dimitri (Lausanne), Zanardini, Aline (Lausanne)



02.11. – 07.11.2025

Organizers:

Analytic Number Theory

Kaisa Matomäki, Turku

James Maynard, Oxford

Kannan Soundararajan, Stanford

Trevor D. Wooley, West Lafayette

Abstract

Analytic number theory is a subject which continues to flourish and grow with several significant developments over the past few years making progress on some of the most famous open problems in mathematics. This workshop brought together world experts and young talent to discuss the various branches and recent developments in the subject. It was noticeable that there was a particularly high number of very strong younger researchers to complement established experts, which corresponds to the current energy and enthusiasm within the subject, and that many important breakthroughs have come from early career researchers. This balance in participants was reflected by a number of exciting talks on major results from participants who had only recently received their PhD.

Participants

Arala Santos, Nuno Miguel (Hannover), Assing, Edgar (Bonn), Bedert, Benjamin (Cambridge), Bernert, Christian (Klosterneuburg), Bhargava, Manjul (Princeton), Blomer, Valentin (Bonn), Bloom, Thomas (Manchester), Brandes, Julia (Göteborg), Browning, Timothy D. (Klosterneuburg), Brüdern, Jörg (Göttingen), Chan, Stephanie (London), Comtat, Felicien (Bonn), Conrey, Brian (Pasadena), Dartyge, Cecile (Vandoeuvre-lès-Nancy), De La Bretèche, Régis (Paris), Dunn, Alexander (Atlanta), Florea, Alexandra (Irvine), Ford, Kevin (Urbana), Green, Ben J. (Oxford), Klurman, Oleksiy (Bristol), Koukoulopoulos, Dimitris (Montréal), Kowalski, Emmanuel (Zürich), Kuperberg, Vivian (Zürich), Li, Junxian (Davis), Matei, Vlad (Bucharest), Matomäki, Kaisa (Turku), Matthiesen, Lilian (Göttingen), Maynard, James A. (Oxford), Merikoski, Jori (Oxford), Pandey, Mayank (Princeton), Pascadi, Alexandru (Bonn), Peluse, Sarah (Stanford), Petersen, Dan (Stockholm), Pilatte, Cédric (Oxford), Prendiville, Sean (Lancaster), Radziwill, Maksym (Evanston), Rydin Myerson, Simon L. (Göteborg), Sawhney, Mehtaab (New York City), Schäfer, Leo (Göttingen), Schindler, Damaris (Göttingen), Soundararajan, Kannan (Stanford), Stadlmann, Julia (Urbana), Technau, Niclas (Madison), Teräväinen, Joni (Cambridge), Vaughan, Robert C. (State College), Wessel, Mieke (Palaiseau), Woo, Katharine (Stanford), Wooley, Trevor D. (West Lafayette), Zubrilina, Nina (Cambridge)



09.11. – 14.11.2025

Organizers:

Arithmetic Statistics for Algebraic Objects

Lior Bary-Soroker, Tel Aviv

Alina Ostafe, Sydney

Peter Sarnak, Princeton

Abstract

The workshop focused on various directions of arithmetic statistics in algebra and number theory. These include statistical problems for random polynomials and varieties, probabilistic Galois theory, and counting and distribution problems for algebraic functions, algebraic number fields, elliptic curves, L -functions, as well as arithmetic problems in non-abelian settings (eg, arithmetic statistics for algebraic groups).

Participants

Bary-Soroker, Lior (Tel Aviv), Ben-Porath, Or (Ramat Aviv, Tel Aviv), Bernert, Christian (Klosterneuburg), Bhargava, Manjul (Princeton), Blomer, Valentin (Bonn), Browning, Timothy D. (Klosterneuburg), Chow, Sam (Coventry), Dietmann, Rainer (Egham), Drappeau, Sary (Aubière), Entin, Alexei (Ramat Aviv, Tel Aviv), Fehm, Arno (Dresden), Fouvry, Etienne (Orsay), Garzoni, Daniele (Los Angeles), Hokken, David (Utrecht), Kimmel, Noam (Ramat Aviv, Tel Aviv), Klurman, Oleksiy (Bristol), Koymans, Peter (Utrecht), Kozma, Gady (Rehovot), Kuperberg, Vivian (Zürich), Lalin, Matilde N. (Montréal), Li, Junxian (Davis), Linn, Johannes (Bonn), Matei, Vlad (Bucharest), Matthiesen, Lilian (Göttingen), Michel, Philippe Gabriel (Lausanne), Neftin, Danny (Haifa), Ostafe, Alina (Sydney), Pagano, Carlo (Montréal), Pandey, Mayank (Princeton), Park, Jennifer (Columbus), Park, Sun Woo (Bonn), Peluse, Sarah (Stanford), Rodgers, Brad (Kingston), Sarnak, Peter C. (Princeton), Schindler, Damaris (Göttingen), Shparlinski, Igor E. (Sydney), Shusterman, Mark (Rehovot), Skorobogatov, Alexei N. (London), Sofos, Efthymios (Roma), Stewart, Cameron L. (Waterloo), Stoll, Michael (Bayreuth), Swaminathan, Ashvin A. (Cambridge), Technau, Niclas (Madison), Viada, Evelina (Göttingen), Wang, Victor (Klosterneuburg), Woo, Katharine (Stanford), Wood, Melanie Matchett (Cambridge), Xu, Max Wenqiang (New York)



16.11. – 21.11.2025

Recent Developments in SPDEs and BSDEs meet Harmonic and Functional Analysis

Organizers:

Stefan Geiß, Jyväskylä
Benjamin Gess, Berlin
Stefanie Petermichl, Würzburg
Mark Veraar, Delft

Abstract

The purpose of this workshop was the strengthening of the interaction between the fields of Stochastic Partial Differential Equations (SPDEs), Backward Stochastic Differential Equations (BSDEs), and Harmonic and Functional Analysis. We focused on the essential role of analytic techniques (including function spaces, weighted inequalities, and A_p -weights) in solving problems in critical stochastic settings. Special topics include SPDEs in critical spaces, regularization by noise, singular SPDEs, quadratic and nonlocal BSDEs.

Participants

Addona, Davide (Parma), Agresti, Antonio (Roma), Alonso Ruiz, Patricia (Jena), Baudoin, Fabrice (Aarhus), Bechtel, Sebastian (Orsay), Bodo, Gergely (Amsterdam), Bogdan, Krzysztof (Wrocław), Brzezniak, Zdzisław (Heslington, York), Buckdahn, Rainer (Brest), Cox, Sonja G. (Amsterdam), Domelevo, Komla (Würzburg), Fladung, Johanna (Würzburg), Frey, Dorothee (Karlsruhe), Geiss, Hannah (Jyväskylä), Geiss, Sarah (Bielefeld), Geiß, Stefan (Jyväskylä), Gerencsér, Máté (Wien), Germ, Fabian (Delft), Gess, Benjamin (Berlin), Imkeller, Peter (Berlin), Ivanisvili, Paata (Irvine), Kakaroumpas, Spyridon (Würzburg), Klioba, Katharina (Delft), Konarovskiy, Vitalii (Hamburg), Kremp, Helena Katharina (Berlin), Kriegler, Christoph (Aubière), Kwaśnicki, Mateusz (Wrocław), Labart, Celine (Le Bourget-du-Lac), Leżaj, Łukasz (Wrocław), Li, Juan (Weihai, Shandong), Lorst, Emiel (Delft), Martini, Adrian (Berlin), Masiero, Federica (Milano), Overbeck, Ludger (Gießen), Petermichl, Stefanie (Würzburg), Pott, Sandra (Lund), Richou, Adrien (Talence), Roodenburg, Floris (Delft), Sauer, Jonas (Jena), Sauerbrey, Max (Leipzig), Steinicke, Alexander (Leoben), van Neerven, Jan (Delft), Veraar, Mark (Delft), Weis, Lutz (Karlsruhe), Werner, Tobias (Kassel)



30.11. – 05.12.2025

**Functional Inequalities: Geometric Calculus
meets Stochastic Analysis**

Organizers:

Masha Gordina, Storrs
Jessica Lin, Montreal
Emanuel Milman, Haifa
Karl-Theodor Sturm, Bonn

Abstract

Functional inequalities form a unifying theme across a wide spectrum of modern analysis, geometry, and probability. They encode deep geometric and analytic information – for instance through Poincaré, log-Sobolev, transportation, isoperimetric and curvature-dimension inequalities – and serve as crucial tools in the study of Markov semigroups, diffusion processes, metric measure spaces, and geometric flows. The workshop brought together researchers working in geometric analysis, stochastic analysis, and optimal transport in order to promote exchange of ideas and further strengthen the interaction between these rapidly developing fields. Substantial emphasis was placed on non-smooth or singular geometric structures, stochastic dynamics with degeneracies, and new bridges between discrete, fractal, and continuum settings.

Participants

Alonso Ruiz, Patricia (Jena), Andres, Sebastian (Braunschweig), Assouline, Rotem (Paris), Barthe, Franck (Toulouse), Baudoin, Fabrice (Aarhus), Bizeul, Pierre (Rehovot), Bormann, Marie (Bonn), Carron, Gilles (Nantes), Chen, Linan (Montréal), Chen, Zhen-Qing (Seattle), Cordero-Erausquin, Dario (Paris), Dagallier, Benoit (London), Dello Schiavo, Lorenzo (Roma), Deuschel, Jean Dominique (Berlin), Erbar, Matthias (Bielefeld), Fathi, Max (Paris), Gordin, Mira (Providence), Gordina, Masha (Storrs), Gozlan, Nathael (Paris), Habermann, Karen (Coventry), Herzog, David P. (Ames), Huesmann, Martin (Münster), Hupp, Erik (Bonn), Kajino, Naotaka (Kyoto), Kigami, Jun (Kyoto), Klartag, Bo'az (Rehovot), Kopfer, Eva (Bonn), Kumagai, Takashi (Tokyo), Lehec, Joseph (Poitiers), Li, Zhenhao (Bielefeld), Lin, Jessica (Montréal), Maas, Jan (Klosterneuburg), Melcher, Tai Alexis (Charlottesville), Milman, Emanuel (Haifa), Mondello, Ilenia (Créteil), Murugan, Mathav (Vancouver), Ohta, Shin-ichi (Osaka), Qian, Wei (Hong Kong), Saloff-Coste, Laurent (Ithaca), Savaré, Giuseppe (Milano), Shanmugalingam, Nageswari (Cincinnati), Sturm, Karl-Theodor (Bonn), Thalmaier, Anton (Esch-sur-Alzette), von Renesse, Max (Leipzig), Wang, Jian (Fuzhou), Wang, Kai-Hsiang (Haifa)



14.12. – 19.12.2025

**Homogeneous Structures: Model Theory
meets Universal Algebra**

Organizers:

Libor Barto, Praha
Manuel Bodirsky, Dresden
Aleksandra Kwiatkowska, Wrocław
Michael Pinsker, Wien

Abstract

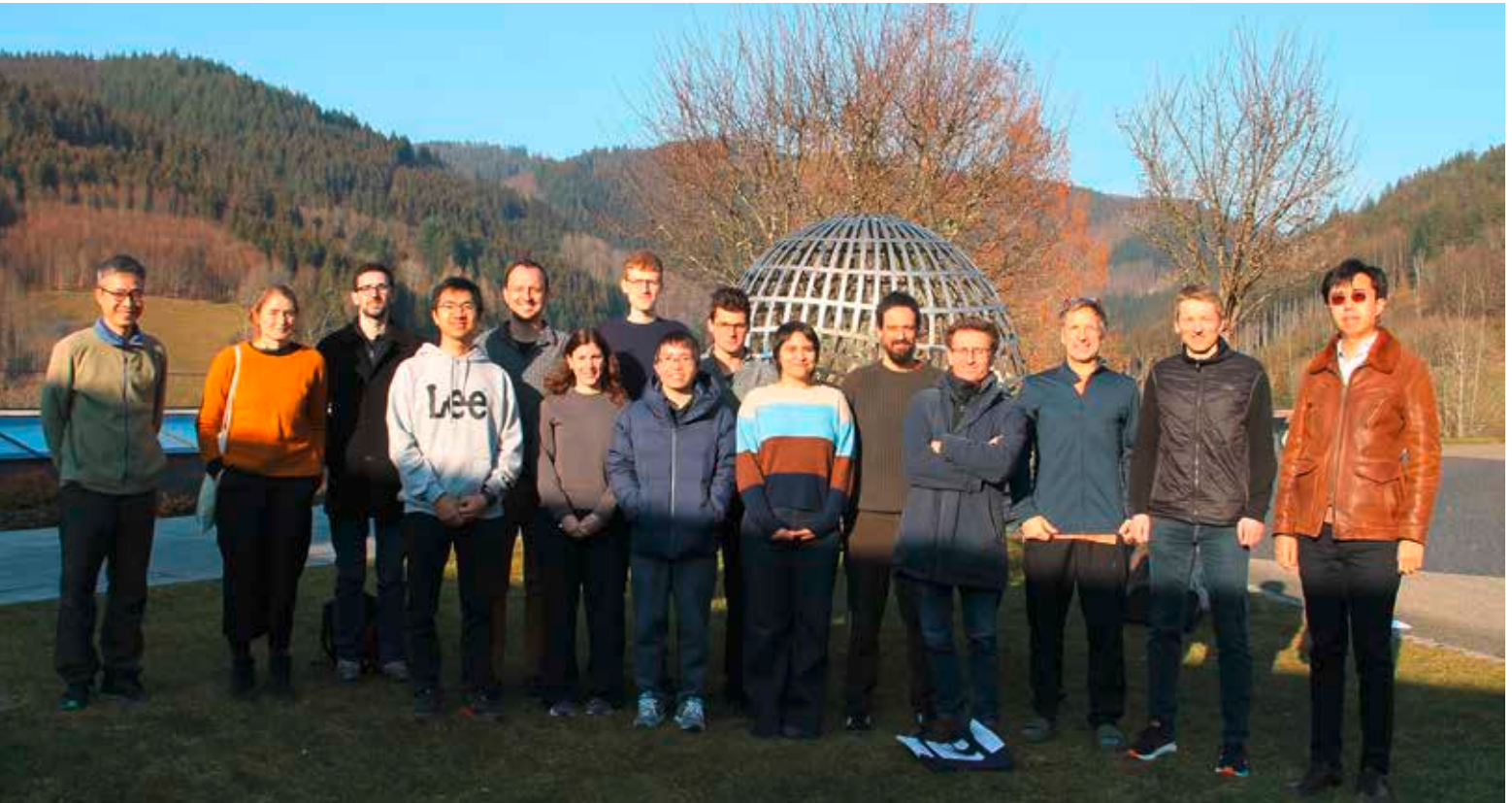
Many fundamental mathematical structures are homogeneous, meaning that local isomorphisms extend to global automorphisms. They arise as limits of classes of finite structures and encode these classes in a single object. This viewpoint has proved fruitful in model theory, universal algebra, and computer science, with applications to constraint satisfaction, automata theory, and verification. Homogeneous structures have rich automorphism groups, which makes them interesting for topological dynamics. For many applications, however, automorphism groups do not store enough information about the homogeneous structure, and one must instead consider polymorphism clones. Universal algebra has recently achieved major results for polymorphism clones on finite structures, culminating in the 2017 resolution of the Feder–Vardi dichotomy conjecture. An analogous conjecture for homogeneous structures remains open despite growing structural insights.

Participants

Atserias, Albert (Barcelona), Barto, Libor (Praha), Bartoš, Adam (Praha), Bodirsky, Manuel (Dresden), Bodor, Bertalan (Wien), Braunfeld, Samuel (Praha), Brunar, Johanna (Wien), Bulatov, Andrei (Burnaby), Chernikov, Artem (College Park), Droste, Manfred (Leipzig), Evans, David M. (London), Feller, Roman (Wien), Fijalkow, Joanna (Talence), Gehrke, Mai (Nice), Grebik, Jan (Leipzig), Hadek, Maximilian (Praha), Hubička, Jan (Praha), Illmer, Maximilian (Innsbruck), Kaplan, Itay (Jerusalem), Kearnes, Keith (Boulder), Kompatscher, Michael (Praha), Konecny, Matej (Dresden), Kozik, Marcin (Kraków), Krokchin, Andrei (Durham), Kubis, Wiesław (Praha), Kwiatkowska, Aleksandra (Wrocław), Macpherson, H. Dugald (Leeds), Malicki, Maciej (Warszawa), Marimon, Paolo (Wien), Mašulović, Dragan (Novi Sad), Mayr, Peter (Boulder), Meyer, Sebastian (Dresden), Mitchell, James (St. Andrews), Mottet, Antoine (Hamburg), Müller, Moritz (Passau), Nesetril, Jaroslav (Praha), Opršal, Jakub (Birmingham), Paolini, Gianluca (Torino), Pech, Maja (Novi Sad), Pinsker, Michael (Wien), Rydval, Jakub (Wien), Schneider, Friedrich Martin (Freiburg), Schöbi, Moritz Albert (Wien), Semanišinová, Žaneta (Wien), Solecki, Sławomir (Ithaca), Szendrei, Agnes (Boulder), Tartarotti, Mira (Oxford), Tent, Katrin (Münster), Torunczyk, Szymon (Warszawa), Tsankov, Todor (Villeurbanne), Vidnyanszky, Zoltan (Budapest), Willard, Ross (Waterloo), Zhuk, Dmitriy (Praha)

3.4. Miniworkshops

Miniworkshop 2508a



16.02. – 21.02.2025

Organizers:

New Directions in Correlated Quantum Systems

Emanuela Giacomelli, Milan

Jinyeop Lee, Basel

Marius Lemm, Tübingen

Abstract

The mathematical study of quantum many-body physics has seen significant breakthroughs in the past 15-20 years. Mathematical physicists have approached these systems from different perspectives with different methods. The mini-workshop aimed to connect two rapidly growing fields: the mathematical analysis of many-body systems in scaling regimes (which has led to precise asymptotic formulas of the ground state energy and time evolution, e.g., of Bose gases) and the study of strongly correlated quantum systems via Lieb-Robinson bounds (which provide fundamental insights into the spreading of quantum information).

Participants

Giacomelli, Emanuela L. (Milano), Hainzl, Christian (München), Kuwahara, Tomotaka (Saitama), Lee, Jinyeop (Basel), Lemm, Marius (Tübingen), Lucas, Andrew (Boulder), Nam, Phan Thành (München), Porta, Marcello (Trieste), Rademacher, Simone (München), Rubiliani, Carla (Tübingen), Seiringer, Robert (Klosterneuburg), Siebert, Oliver (Davis), Triay, Arnaud (München), Vu, Tan Van (Kyoto), Wessel, Tom (Tübingen), Zhang, Jingxuan (Beijing)



16.02. – 21.02.2025

Organizers:

Statistical Challenges for Deep Generative Models

Sören Christensen, Kiel

Alain Oliviero-Durmus, Palaiseau

Claudia Strauch, Heidelberg

Lukas Trottner, Birmingham

Abstract

Deep generative modelling has emerged as a powerful tool in machine learning. The idea is simple: transform noise to create new data that matches a given training data set. Such transformations must adapt to the information contained in the training data, which is high-dimensional in typical machine learning applications. Generative models, which have demonstrated outstanding empirical generation capabilities for images, videos, text, and many others, have in common that they train deep neural networks to either approximate the transformation directly or to approximate the characteristics of a stochastic process that dynamically evolves noise into data. To explain this empirical success mathematically, we face the statistical task of identifying scenarios in which the distance between the target and generated distributions converges with minimax optimal rate in terms of the sample size as well as the intrinsic dimension and smoothness of the data distribution. While there has been significant progress on this question in rather idealised settings, existing statistical theory is still far from providing a convincing mathematical explanation for why deep generative models perform so well for very different tasks. Answering such questions requires a concerted effort from researchers working in probability, nonparametric statistics, functional analysis and optimisation. The aim of this Mini-Workshop was to bring these experts together to foster intensive interactions and to address the statistical challenges posed by generative modelling.

Participants

Aamari, Eddie (Paris), Azangulov, Iskander (Oxford), Belomestny, Denis (Essen), Christensen, Sören (Kiel), Conforti, Giovanni (Padova), Janati, Yazid (Paris), Kunkel, Lea (Karlsruhe), Naesseth, Christian A. (Amsterdam), Oliviero-Durmus, Alain (Palaiseau), Peluchetti, Stefano (Tokyo), Reiß, Markus (Berlin), Rousseau, Judith (Oxford), Shariatian, Dario (Paris), Stephanovitch, Arthur (Paris), Strauch, Claudia (Heidelberg), Trabs, Mathias (Karlsruhe), Trottner, Lukas (Birmingham), Wei, Yuting (Philadelphia)



16.02. – 21.02.2025

MFO-RIMS Tandem Workshop: Optimization, Theoretical Computer Science and Algebraic Geometry: Convexity and Beyond

Organizers:

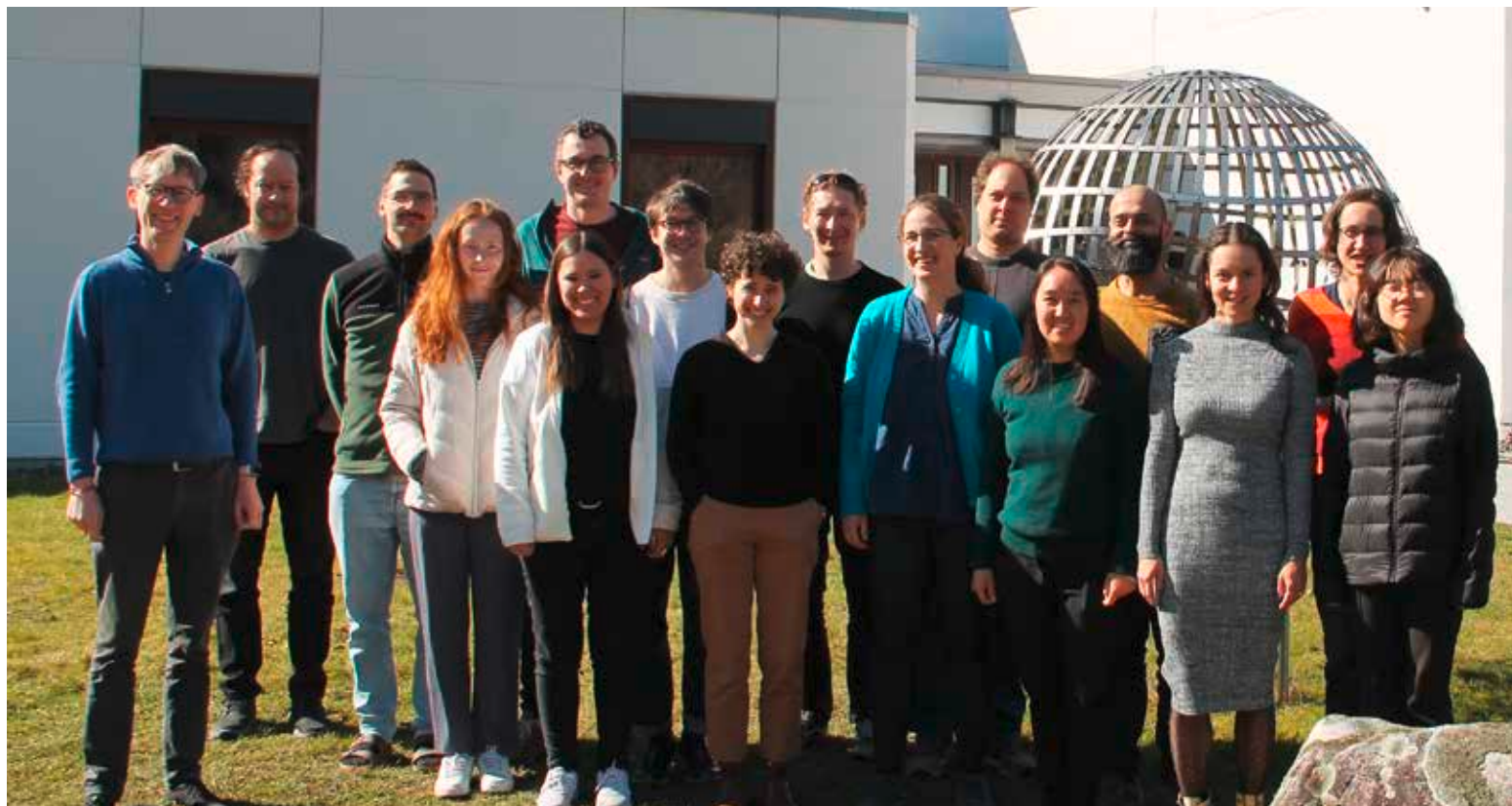
Yoshio Okamoto, Tokyo
Cordian Riener, Tromsø
Markus Schweighofer, Konstanz
Yoshiyuki Sekiguchi, Tokyo

Abstract

The joint workshop brought together leading experts from real algebraic geometry, computational algebra, polynomial optimization, and theoretical computer science. The event fostered vibrant interdisciplinary exchange, with a particular emphasis on the role of computation – both as a practical tool for algorithm design and as a lens for uncovering deep mathematical structures. The event was held in a hybrid format, with parallel in-person meetings at the Mathematisches Forschungsinstitut Oberwolfach and the Research Institute for Mathematical Sciences in Kyoto, connected via a shared digital infrastructure.

Participants

Austrin, Per (Stockholm), Basu, Saugata (West Lafayette), Blekherman, Greg (Atlanta), Brändén, Petter (Stockholm), Curticapean, Radu (Regensburg), Debus, Sebastian (Chemnitz), Kaihnsa, Nidhi (København), Kaski, Petteri (Espoo), Kiefer, Sandra (Oxford), Kunisky, Dmitriy (Tim) (Baltimore), Mohammadi, Fatemeh (Leuven), Okamoto, Yoshio (Tokyo), Riener, Cordian (Tromsø), Safey El Din, Mohab (Paris), Schweighofer, Markus (Konstanz), Sekiguchi, Yoshiyuki (Tokyo), Teixeira Turatti, Ettore (Tromsø), Vargas, Luis Felipe (Lugano)



02.03. – 07.03.2025

Organizers:

Alcoved Polytopes in Physics and Optimization

Nicholas Early, Leipzig
Lukas Kühne, Bielefeld
Leonid Monin, Lausanne
Josephine Yu, Atlanta

Abstract

An alcoved polytope is a polytope whose facet normal are all in direction of type A roots. This fundamental class of polytopes has ample applications in for instance tropical geometry, statistics and algebra. The mini-workshop showcased various recent developments related to alcoved polytopes and their generalizations with a particular focus on their connections to physics and optimization. During the workshop four working groups studied open problems proposed in the problem sessions. The groups decided to continue working on these questions remotely.

Participants

Brandenburg, Marie-Charlotte (Stockholm), Bullock, Elisabeth (Cambridge), Early, Nicholas (Leipzig), Jiang, Yuhan (Cambridge), Jochemko, Katharina (Stockholm), Juhnke, Martina (Osnabrück), Kühne, Lukas (Bielefeld), Loho, Georg (Berlin), Monin, Leonid (Lausanne), Poliakova, Daria (Hamburg), Postnikov, Alexander (Cambridge), Sanyal, Raman (Frankfurt am Main), Schröter, Benjamin (Stockholm), Sherman-Bennett, Melissa (Davis), Sinn, Rainer (Leipzig), Yu, Josephine T. (Atlanta)



02.03. – 07.03.2025

Organizers:

Recent Results on Loop Spaces

Sergio Cacciatori, Como
Batu Güneysu, Chemnitz
Eva Kopfer, Bonn

Abstract

Loop spaces have been a constant source of deep and interesting mathematical problems since the 1980's, both as a tool that provides new insights in existing theories, or as an independent object that leads to new results and that serves as a guiding example for abstract (analytic) theories of infinite dimensional spaces. This Oberwolfach Mini-Workshop gathered mathematicians with an expertise in loop spaces, in order to discuss recent breakthrough results in the field, and the implications of these. A particular focus was given on recent results that rigorously connect loop spaces to index theory.

Participants

Boldt, Sebastian (Chemnitz), Cacciatori, Sergio Luigi (Como), Grbic, Jelena (Southampton), Güneysu, Batu (Chemnitz), Jeffrey, Lisa Claire (Toronto), Kopfer, Eva (Bonn), Ludewig, Matthias (Greifswald), Marot, Maxime (Chemnitz), Miehe, Jonas (Chemnitz), Nikzad Pasikhani, Fatemeh (Zanjan), Noja, Simone (Heidelberg), Shen, Shu (Paris), Thalmaier, Anton (Esch-sur-Alzette), Weitsman, Jonathan (Boston)



02.03. – 07.03.2025

Organizers:

Hardy Inequalities in Discrete and Continuum Settings

Elvise Berchio, Torino
Matthias Keller, Potsdam
Yehuda Pinchover, Haifa
Luz Roncal, Bilbao

Abstract

Hardy inequalities play a fundamental role in various fields, such as mathematical physics, operator theory, the analysis of partial differential equations, potential theory, and probability theory. The goal of this workshop was to bring together leading experts to foster cross-interactions between them, with special focus on the following three topics, which naturally overlap: optimal Hardy weights on manifolds and graphs; fractional Laplacians; Sub-Riemannian analogues, magnetic Laplacians and Dirac operators.

Participants

Berchio, Elvise (Torino), Bogdan, Krzysztof (Wrocław), Das, Ujjal (Bilbao, Bizkaia), Devyver, Baptiste (Gières), Dyda, Bartłomiej (Wrocław), Fanelli, Luca (Bilbao, Bizkaia), Fischer, Florian (Bonn), Frank, Rupert L. (München), Grillo, Gabriele (Milano), Gupta, Shubham (Beijing), Keller, Matthias (Potsdam), Kovarik, Hynek (Brescia), Krejcirik, David (Praha), Pinchover, Yehuda (Haifa), Pogorzelski, Felix (Leipzig), Roncal, Luz (Bilbao, Bizkaia), Roychowdhury, Prasun (Milano), Schmidt, Marcel (Leipzig), Szczukiewicz, Antoni (Wrocław)



21.09. – 26.09.2025

MATRIX-MFO Tandem Workshop: Machine Learning and AI for Mathematics

Organizers:

François Charton, Paris
Jan de Gier, Melbourne
Amaury Hayat, Paris
Julia Kempe, New York
Geordie Williamson, Sydney

Abstract

This workshop explored how modern machine learning can both accelerate mathematical discovery and preserve rigorous standards. It focused on three angles: using AI techniques to help mathematicians make advances on challenging problems; using mathematics to understand AI predictions; and using deep-learning models for automated theorem proving. Key discussions included using machine learning as a tool for constructing interesting mathematical constructions and navigating in mathematical search spaces, to uncover conjectures and high-quality examples; Integrating Large Language Models (LLMs) with formal systems to create scalable, certifiable AI-based automated theorem prover; Collaborative formalization, autoformalization for high-quality supervised data, and reinforcement learning/search methods for proof generation and algorithmic reasoning.

Participants

Avigad, Jeremy (Pittsburgh), Ballard, Matthew R. (Columbia), Banwait, Barinder (Boston), Bérczi, Gergely (Aarhus), Charton, François (Paris), Chervov, Alexander (Paris), Costa, Edgar (Cambridge), de Frutos-Fernández, María Inés (Bonn), de Gier, Jan (Parkville), Douglas, Michael R. (Cambridge), Elie, Romuald (Paris), Glöckle, Fabian (Marne-la-Vallée), Gomez-Serrano, Javier (Providence), Gowers, William Timothy (Cambridge), Gu, Alex (Sunnyvale), Hashemi, Baran (Garching bei München), Hayat, Amaury (Champs-sur-Marne), Hong, Carina Letong (Stanford), Jiang, Albert (Cambridge), Kempe, Julia (New York), Krajenbrink, Alexandre (London), Lee, Kyu-Hwan (Storrs), Macbeth, Heather (London), Nehme, Jonas (Bonn), Oliver, Thomas (London), Peyronnet, Antoine (Champs-sur-Marne), Prat Colomer, Maria (Providence), Stroppel, Catharina (Bonn), Sutherland, Andrew (Cambridge), Szegedy, Christian (Palo Alto), van Doorn, Floris (Bonn), Wagner, Adam Zsolt (London), Weber, Melanie (Cambridge), Wienhard, Anna Katharina (Leipzig), Williamson, Geordie (Sydney), Wood, Melanie Matchett (Cambridge)



21.09. – 26.09.2025

Organizers:

Renormalisation and Randomness

Paolo Aschieri, Alessandria/Torino

Razvan G. Gurau, Heidelberg

Sylvie Paycha, Potsdam

Kasia Rejzner, York

Abstract

In recent decades, renormalisation, which has long been a workman's tool for theoretical physicists, has also become an essential mathematical tool that appears in many guises. Within mathematics, renormalisation bridges across topics such as combinatorics and stochastic analysis. Yet, in part due to a lack of a common language, the advances on the mathematical side do not seem to fully reach out to the theoretical physicist. Conversely, the mathematician rarely benefits from the physicist's expertise in renormalisation. The goal of this workshop is to bridge this gap and provide a platform for communication and exchange of ideas, a first step in the direction of increased interaction and cross fertilisation between the two communities.

Participants

Aschieri, Paolo (Alessandria), Benedetti, Dario (Palaiseau), Bonechi, Francesco (Padova), Bruned, Yvain (Vandoeuvre-lès-Nancy), Chevyrev, Ilya (Trieste), Dappiaggi, Claudio (Pavia), Diehl, Joscha (Greifswald), Ebrahimi-Fard, Korusch (Trondheim), Ferdinand, Léonard (Leipzig), Frabetti, Alessandra (Villeurbanne), Friz, Peter K. (Berlin), Gurau, Razvan-Gheorghe (Heidelberg), Herscovich, Estanislao (Gières), Jurco, Branislav (Praha), Keppler, Hannes (Heidelberg), Medwed, Felix (Potsdam), Paulovics, Peter (Oxford), Paycha, Sylvie Jane Ann (Potsdam), Peev, Martin (London), Ravot Licheri, Matteo (Berlin), Rejzner, Kasia (York), Salmhofer, Manfred (Heidelberg), Schreiber, Urs (Abu Dhabi), Singh, Harprit (Wien), Surya, Sumati (Bengaluru), Waldorf, Konrad (Greifswald), Zanella, Fabrizio (Potsdam)



26.10. – 31.10.2025

Organizers:

Resurgence, Difference Equations and Quantum Modularity

Murad Alim, Garching/Edinburgh

Veronica Fantini, Orsay

Lotte Hollands, Edinburgh

Claudia Rella, Bures-sur-Yvette

Abstract

The resurgent analysis of asymptotic series has found diverse applications and led to profound insights into our understanding of enumerative geometry, difference equations, and quantum modular forms. Consequently, interactions among these three independent yet intertwined avenues of contemporary research have recently soared. This mini-workshop brought together both senior and junior researchers from each area to clarify the state of the art and establish common ground for collectively addressing the most relevant open questions in the field.

Participants

Alim, Murad (Garching bei München), Coman Lohi, Ioana Alexandra (Kashiwa), Del Monte, Fabrizio (Birmingham), Fantini, Veronica (Orsay), Gukov, Sergei G. (Pasadena), Hindson, Sam (Odense), Hollands, Lotte (Edinburgh), Kager, Jasper (Lisboa), Kashae, Rinat (Genève), Longhi, Pietro (Uppsala), Murugesan, Subrabalan (Edinburgh), Nikolaev, Nikita (Birmingham), Rella, Claudia (Bures-sur-Yvette), Teschner, Jörg (Hamburg), Tischler, Noah (Edinburgh), Wheeler, Campbell (Bures-sur-Yvette)



26.10. – 31.10.2025

The Yang–Baxter Equation and Representations of Braid Groups

Organizers:

Ilaria Colazzo, Leeds
Julia Plavnik, Bloomington
Eric Rowell, College Station/Leeds
Leandro Vendramin, Brussel

Abstract

The Yang–Baxter equation is a famous equation in mathematics and mathematical physics. It plays a central role in several areas of mathematics, including algebra, topology, and quantum field theory. The aim of the workshop is to review recent developments in areas where the Yang–Baxter equation is crucial to discuss new research directions and ideas for addressing open problems. Classification problems and applications were two broad themes.

Participants

Andruskiewitsch, Nicolás (Córdoba), Carnovale, Giovanna (Padova), Colazzo, Ilaria (Leeds), Faria Martins, Joao (Leeds), Ferri, Davide (Torino), Gran, Marino (Louvain-la-Neuve), Heckenberger, Istvan (Marburg), Jespers, Eric F. (Brussels), Lebed, Victoria (Caen), Lechner, Gandalf (Erlangen), Lentner, Simon David (Hamburg), Properzi, Silvia (Brussels), Recio, Isabela (Hamburg), Rowell, Eric C. (College Station), Torzewska, Fiona (Bristol), Vendramin, Leandro (Brussel)



26.10. – 31.10.2025

Probabilistic Perspectives in Neural Network-Based Machine Learning

Organizers:

Steffen Dereich, Münster
Aymeric Dieuleveut, Palaiseau
Sebastian Kassing, Berlin
Sophie Langer, Bochum

Abstract

Artificial neural networks (ANNs) have emerged as a powerful tool in modern machine learning, yet their mathematical foundations remain only partially understood. A key challenge is the inherently stochastic nature of ANN training: optimization occurs in high-dimensional parameter spaces with complex loss landscapes, influenced by stochastic initialization and noisy gradient updates. Understanding these dynamics requires probabilistic methods and asymptotic frameworks. This workshop explored recent advances in stochastic training dynamics, emphasizing probabilistic techniques and limit theorems. By bringing together researchers from probability, optimization, and deep learning theory, this workshop laid the groundwork for new directions in understanding neural network training from a stochastic perspective.

Participants

Ackermann, Julia (Wuppertal), Dereich, Steffen (Münster), Dieuleveut, Aymeric (Palaiseau), Gess, Benjamin (Berlin), Kassing, Sebastian (Berlin), Konarovskiy, Vitalii (Hamburg), Langer, Sophie (Bochum), Papagiannouli, Katerina (Leipzig), Pesme, Scott (Montbonnot, St. Ismier), Schmidt-Hieber, Johannes (Enschede), Seleznova, Mariia (München), Shalova, Anna (Eindhoven), Taylor, Adrien (Paris), Trottner, Lukas (Stuttgart), Wang, Sven (Lausanne), Weissmann, Simon (Mannheim)



07.12. – 12.12.2025

Organizers:

Algebraic Foliations: Analytic and Birational Viewpoint

Eleonora Di Nezza, Rome

Enrica Floris, Toulouse

Susanna Zimmermann, Basel

Abstract

The main goal of the mini-workshop was starting strong collaborations between outstanding women in geometry with a broad spectrum of expertise. The focus was on the interplay of three topics in Geometry: analytic methods in Kähler geometry, Foliations and Cremona groups. More precisely, Foliation theory was a unifying theme. Several open problems in foliation theory were presented, of analytic and birational flavour, and connected to the Cremona group. The participants then split into four research groups.

Participants

Bobrova, Irina (Leipzig), Chen, Yifan (Roma), Di Nezza, Eleonora (Roma), Floris, Enrica (Toulouse), Gachet, Cécile (Bochum), Hamenstädt, Ursula (Bonn), Ji, Lena (Urbana), Merkel, Romy Marie (Münster), Pardini, Rita (Pisa), Pérez Callejo, Elvira (Val-ladolid), Rizzo, Francesca (Paris), Vassiliadis, Stefania (London), Wang, Liqingjing (Nice), Zimmermann, Susanna (Basel)



07.12. – 12.12.2025

Organizers:

Approximation of Manifold-Valued Functions

Nir Sharon, Tel Aviv

Holger Wendland, Bayreuth

Ralf Zimmermann, Odense

Abstract

The approximation of unknown functions from scattered, possibly high-dimensional data is central to many scientific applications. Advances in data acquisition have driven the need for flexible non-linear models, including manifold-valued functions. Approximating and learning such functions differs fundamentally from classical linear methods and requires tools from numerical analysis, linear algebra, and differential geometry. This interdisciplinary framework has applications ranging from data science and machine learning to numerical PDEs and quantum chemistry. This mini-workshop brings together researchers developing constructive approximation methods for manifold-valued functions, their theory, and applications.

Participants

Bergmann, Ronny (Trondheim), Bresch, Jonas (Berlin), Diepeveen, Willem (Los Angeles), Dyn, Nira (Tel Aviv), Fischer, Daniel (Bayreuth), Hardering, Hanne (Dresden), Hielscher, Ralf (Freiburg), Hüper, Knut (Würzburg), Jensen, Rasmus (Odense), Maigne, Simon (Louvain-la-Neuve), Mattar, Wael (Tel Aviv), Sharon, Nir (Tel Aviv), Silva Leite, Fatima (Coimbra), Wang, Hang (Leuven), Wendland, Holger (Bayreuth), Zimmermann, Ralf (Odense)



07.12. – 12.12.2025

Organizers:

Hyperbolic meets Stochastic Geometry

Ruth Kellerhals, Fribourg
Christoph Thäle, Bochum

Abstract

The mini-workshop brought together researchers from hyperbolic geometry and stochastic geometry with the aim of advancing the emerging field of hyperbolic stochastic geometry. It focused on understanding how negative curvature fundamentally influences the behaviour of random geometric models. Particular emphasis was placed on limit theorems, phase transitions, and scaling phenomena that differ substantially from those observed in Euclidean settings. The program combined survey lectures, research presentations, and discussion sessions to link geometric methods with probabilistic techniques tailored to hyperbolic spaces. As a result, the workshop clarified central challenges in the field, identified key open problems, and initiated new collaborations spanning geometry, probability, and related areas.

Participants

Anantharaman, Nalini (Strasbourg), Besau, Florian (Jena), Curien, Nicolas (Orsay), D'Achille, Matteo (Metz), Fountoulakis, Nikolaos (Birmingham), Gusakova, Anna (Münster), Hug, Daniel (Karlsruhe), Kabluchko, Zakhar (Münster), Kellerhals, Ruth (Fribourg), Müller, Tobias (Groningen), Petri, Bram (Paris), Peyerimhoff, Norbert (Durham), Raimbault, Jean (Marseille), Stegehuis, Clara (Enschede), Thäle, Christoph (Bochum), Trapp, Vanessa (Bochum)

3.5. Arbeitsgemeinschaften

Arbeitsgemeinschaft 2514



30.03. – 04.04.2025

Organizers:

Relative Langlands Duality

David Ben-Zvi, Austin

Yiannis Sakellaridis, Baltimore

Akshay Venkatesh, Princeton

Abstract

One of the fundamental properties of automorphic forms is that their periods – integrals against certain distinguished cycles or distributions – give special values of L -functions. The Langlands program posits that automorphic representations for a reductive group G correspond to (generalizations of) Galois representations into its Langlands dual group $\check{G}$. Periods and L -functions are specific ways to extract numerical invariants from the two sides of the Langlands program; in interesting cases, they match with one another. Relative Langlands Duality is the systematic study of the manifestations of this matching at all “tiers” of the Langlands program (global, local, geometric, arithmetic, etc.). A key point is a symmetric conceptualization of both sides: periods arise from suitable Hamiltonian G -actions $G \curvearrowright M$ and L -functions from suitable Hamiltonian $\check{G}$ -actions $\check{G} \curvearrowright \check{M}$.

Participants

A'Campo, Lambert (Bonn), Aoki, Ko (Bonn), Bajpai, Jitendra (Kiel), Ben-Zvi, David (Austin), Bian, Zechen (Berkeley), Boisseau, Paul (Marseille), Disegni, Daniel (Marseille), Droschl, Johannes (Wien), Færgeman, Joakim (New Haven), Fang, Xingzhu (Princeton), Fintzen, Jessica (Bonn), Gallego Sanchez, Guillermo (Berlin), Gannon, Tom (Los Angeles), Gregoric, Rok (Baltimore), Gunningham, Sam (Bozeman), Hayash, Andreas (Thessaloniki), Kaletha, Tasho (Bonn), Kansal, Kalyani (London), Kubrak, Dmitry (Bures-sur-Yvette), Lai, Shilin (Austin), Le Bras, Arthur-César (Strasbourg), Li, Huajie (Baltimore), Li, Yingkun (Bonn), Liao, Yanzhan (Buffalo), Li-Huerta, Siyan Daniel (Bonn), Lin, Milton (Baltimore), Lu, Weixiao (Cambridge), Nordentoft, Asbjørn Christian (Paris), Padurariu, Tudor (Paris), Qin, Junhui (Strasbourg), Raghavendran, Surya (New Haven), Sakellaridis, Yiannis (Baltimore), Schefers, Kendric D. (Berkeley), Scholze, Peter (Bonn), Schwein, David (Bonn), Shan, Yi (Paris), Shu, Cheng (Hangzhou, Zhejiang), Singh, Harprit (Wien), van den Hove, Thibaud (Darmstadt), Van Order, Jeanine (Rio de Janeiro), Venkatesh, Akshay (Princeton), Wang, Yiyang (Kyoto), Whitmore, Dmitri (Cambridge), Xi, Guodong (Minneapolis), Xiao, Runlei (Padova), Yuan, Jiangfan (Orsay), Zhang, Zhiyu (Stanford)



05.10. – 10.10.2025

Organizers:

Analysis of Many-body Quantum Systems

Christian Hainzl, München

Benjamin Schlein, Zürich

Robert Seiringer, Klosterneuburg

Jan Philip Solovej, Copenhagen

Abstract

The understanding of many-body systems in quantum mechanics is a central aspect of Mathematical Physics. Recent technological advances in trapping and cooling atoms allowed to explore many fascinating aspects of such systems, including phenomena like superfluidity and Bose–Einstein condensation. Partly motivated by this progress, there has been a substantial effort in the past two decades to develop new mathematical tools to solve some of the outstanding open problems in this field. The goal of this meeting was to give a comprehensive overview of some of the techniques that have been developed, as well as the kind of problems that have been successfully attacked.

Participants

Acuna Flores, Jorge (Tübingen), Aschieri, Tommaso (København), Bianchini, Marco (L'Aquila), Brown, Oliver (Bristol), Carvalho Corso, Thiago (Stuttgart), Ciccarello, Gabriele (København), Dam Larsen, Martin (Copenhagen), Desio, Davide (Klosterneuburg), Ferrero, Margherita (München), Ferretti, Daniele (L'Aquila), Galanda, Stefano (Genova), Gerhat, Borbala (Klosterneuburg), Giacomelli, Emanuela L. (Milano), Hainzl, Christian (München), Hairer, Martin (Lausanne), Huang, Wei (Berlin), Ji, Xiaohao (Berlin), Junge, Lukas (København), Köppl, Jonas (Berlin), Kroschinsky, Wilhelm (Bonn), Lauritsen, Asbjørn Baekgaard (Paris), Lee, Jinyeop (Basel), Le Henaff, Yoann (Tübingen), Lill, Sascha (København), Lipardi, Giuseppe (L'Aquila), Mazzini, Gabriele (L'Aquila), Mokrzanski, Norbert (Warszawa), Morellini, Umberto (Pisa), Naidu, Diwakar (Milano), Nogly, Libor (Zürich), Panza, Riccardo (München), Peev, Martin (London), Pietropaoli, Cecilia (Trieste), Pigozzi, Lorenzo (Klosterneuburg), Polo Ojito, Danilo (New York), Roos, Barbara (L'Aquila), Saksida, Grega (Coventry), Saxler, Fabian (Klosterneuburg), Schlein, Benjamin (Zürich), Schmidt, Tobias (Darmstadt), Schraven, Severin (Garching bei München), Seiringer, Robert (Klosterneuburg), Singh, Harprit (Wien), Solovej, Jan Philip (København), Tokus, Sabiha (Milano), van Grinsven, Anne (København), Visconti, Francois (München)



12.10. – 17.10.2025

Organizers:

Combinatorial Hodge Theory

Chris Eur, Pittsburgh

June Huh, Princeton

Matt Larson, Princeton

Abstract

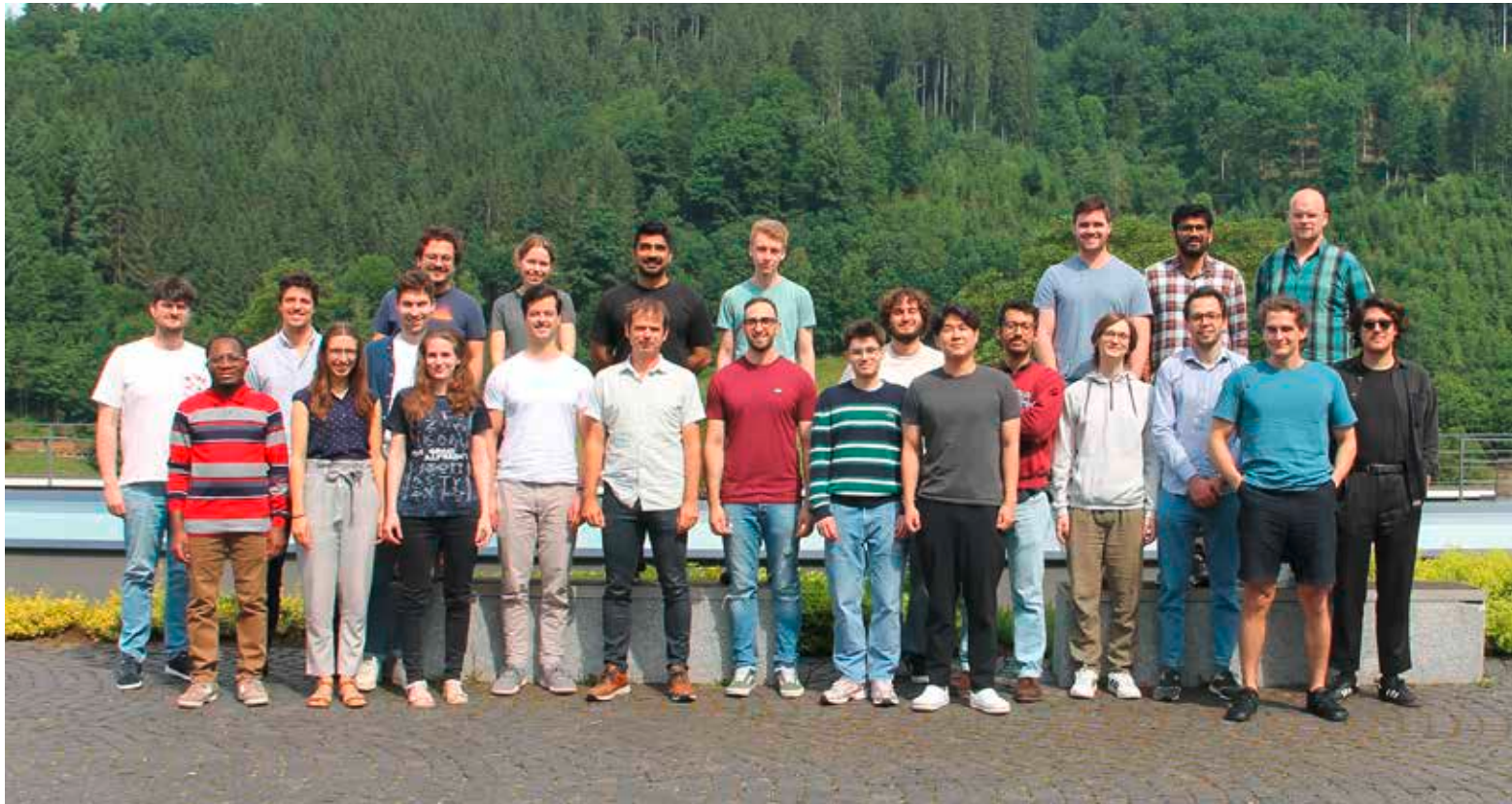
Combinatorial Hodge theory has undergone rapid development in recent years, revealing deep connections between matroid theory, tropical geometry, toric geometry, and convex geometry. Building on the Kähler package for matroids and the emergence of Lorentzian structures across combinatorics, the field now encompasses a broad family of Hodge-theoretic phenomena arising from purely combinatorial objects. The goal of this Arbeitsgemeinschaft was to provide participants with a structured and accessible overview of these developments, emphasizing both foundational material and current research directions. The program was organized around four major themes – matroids, Hodge theory, toric methods, and Lorentzian polynomials – with lectures highlighting topics such as Baker–Bowler framework for matroids with coefficients, Chow rings of matroids and wonderful compactifications of hyperplane arrangements, Lorentzian polynomials and volume polynomials, and matroids over triangular hyperfields. Together, these lectures aimed to prepare participants for further research in this evolving area.

Participants

Almousa, Ayah (Lexington), Baker, Matthew (Atlanta), Chin, Tracy (Seattle), Cid Ruiz, Yairon (Raleigh), Cristancho, Sergio (Princeton), Dennin, Hugh (Columbus), Doležálek, Matěj (Konstanz), Douglass, Matthew (Alexandria), Dupraz, Matthew (Berlin), Eur, Christopher (Pittsburgh), Gonzales, Theodore (Princeton), Grund, Lukas (Jena), Gui, Tao (Beijing), Guo, Yifan (Providence), Huang, Daoji (Amherst), Huh, June (Princeton), Hwang, Daniel Yoontae (Atlanta), Jal, Aryaman (Bochum), Jin, Tong (Nashville), Jun, Jaiung (New Paltz), Karn, Trevor K. (College Station), Kühne, Lukas (Bielefeld), Larson, Matt (Princeton), Le, Tuong (Princeton), Leake, Jonathan (Waterloo), Lee, Seungkyu (Palaiseau), Lorscheid, Oliver (Groningen), Lowen, Chayim (Princeton), Martinez Mendez, Alejandro (Groningen), Matherne, Jacob (Raleigh), Mathis, Léo (Osnabrück), Nadeau, Philippe (Villeurbanne), Nathanson, Anastasia (Minneapolis), Partida, Ethan (Providence), Pfister, Anaëlle (Leipzig), Pflueger, Nathan (Amherst), Qin, Daniel (Davis), Robins, Sharon (Pittsburgh), Röhrle, Gerhard (Bochum), Sawall, David (Konstanz), Schleis, Victoria (Durham), Silversmith, Rob (Atlanta), Thom, Andreas B. (Dresden), Tong, Nok To Omega (Madison), Vlad, Raluca (Providence), Wang, Jidong (Ann Arbor), Wang, Shouda (Princeton), Weigert, Julian (Leipzig), Yoo, Semin (Daejeon)

3.6. Oberwolfach Seminare

Oberwolfach Seminar 2524a



08.06. – 13.06.2025

Organizers:

Stochastic Partial Differential Equations in Critical Spaces

Antonio Agresti, Delft

Mark Veraar, Delft

Abstract

Can abstract theory capture concrete behaviours and lead to a new understanding of nonlinear-parabolic SPDEs? In this seminar, we presented recent developments on stochastic partial differential equations (SPDEs) in critical spaces, where 'criticality' refers to local scaling invariance of the equation and is captured through abstract conditions. Combining tools from PDEs, probability theory and functional analysis, the theory of critical spaces provides the optimal setting to study the well-posedness of parabolic SPDEs and has already led to new insights into stochastic versions of reaction-diffusion and fluid dynamics models. While the first steps have been made, the seminar prepared to take it to the next level.

Participants

Agresti, Antonio (Roma), Bau, Simon (Konstanz), Butori, Federico (Pisa), Chiusole, Gideon (Garching bei München), Choi, Jae-Hwan (Seoul), Del Sarto, Gianmarco (Darmstadt), Evangelopoulos-Ntemiris, Foivos-Apollon (Delft), Geiss, Sarah (Bielefeld), Goodair, Daniel (Lausanne), Jidjou Moghomye, Boris (Leoben), Klioba, Katharina (Delft), Kumar, Ankit (Leoben), Marino, Lorenzo (Pisa), Moneyron, Antoine (Rennes), Orteu, Max (Berlin), Pitrone, Andrea (Oxford), Popat, Shyam (Oxford), Roodenburg, Floris (Delft), Sauerbrey, Max (Leipzig), Spyрка, Dominik (Kassel), Theewis, Esmee (Delft), Veraar, Mark (Delft), Werner, Tobias (Kassel), Zöchling, Tarek (Darmstadt)



08.06. – 13.06.2025

Organizers:

Modern Developments in Matroid Theory

Graham Denham, London ON

Jacob Matherne, Raleigh

Gerhard Röhrle, Bochum

Uli Walther, West Lafayette

Abstract

Recently, a number of long-standing conjectures in the field of matroid theory, and more generally in combinatorics, have been resolved by the injection of algebraic geometry and Hodge theory into the subject. A non-exhaustive list includes Adiprasito, Huh, and Katz's resolution of the Heron–Rota–Welsh conjecture, the proof of Dowling–Wilson's top-heavy conjecture by Braden, Huh, Matherne, Proudfoot, and Wang, as well as the proof of Brylawski and Dawson's conjectures by Ardila, Denham and Huh. This Oberwolfach Seminar presented these (and related) novel developments in an approachable way to graduate students and postdocs.

Participants

Bath, Dan (Leuven), Binder, Kyle (Columbus), Chen, Xiangying (Bochum), Degen, Sebastian (Bielefeld), Denham, Graham (London), Dunaisky, Tyler (West Lafayette), Fink, Mieke (London), Giordani, Lorenzo (Bochum), Hocke, Lena (Hannover), Holleben, Thiago (Halifax), Homan, Ben (Eugene), Jiang, Leo (Toronto), Kuhrs, Arne (Paderborn), LaClair, Adam (West Lafayette), Leivaditis, Alexandros (Bochum), Li, Yupeng (Durham), Liao, Hsin-Chieh (St. Louis), Lubier, Dante (Paderborn), Matherne, Jacob (Raleigh), Mayo Garcia, Mayo (Coventry), Röhrle, Gerhard (Bochum), Shapiro, Anna (Raleigh), Walther, Uli (West Lafayette), Wiesner, Sven (Bochum)



19.10. – 24.10.2025

Organizers:

Tensor Triangular Geometry and Interactions

Natàlia Castellana, Bellaterra

Henning Krause, Bielefeld

Greg Stevenson, Aarhus

Abstract

How can we study algebraic geometry, modular representation theory, and stable homotopy theory at the same time? One answer is given by tensor triangular geometry, which is a young and vibrant area based on viewing symmetric monoidal triangulated categories as geometric objects. The aim of the seminar was to give a comprehensive introduction to the fundamentals of the subject and an overview of recent developments in algebra and topology. There was a particular focus on triangulated categories associated to finite group actions, for instance equivariant spectra and categories arising from representation theory.

Participants

Aguilar, Andrew (Seattle), Castellana Vila, Natàlia (Bellaterra, Barcelona), Chen, Yifan (Hefei, Anhui Province), Goodbody, Isambard (Glasgow), Hamil, Matthew (Baltimore), Kekkou, Antonia (Salt Lake City), Kleven, John Aslak Wee (Trondheim), Kostas, Panagiotis (Thessaloniki), Krause, Henning (Bielefeld), Le Gros, Giovanna (Praha), Lyttle, Mark (Belfast), Manali Rahul, Kabeer (Bonn), Martinez De Cestafe Pumares, Gabriel (Bellaterra, Barcelona), Miller, Sam (Athens), Neugebauer, Fabio (Bonn), Nkansah, David (Aarhus), Parker, Chris (Bielefeld), Pizzirani, Simone (Praha), Schemeil, Jean Paul (Nottingham), Sparks, Fraser (Nottingham), Stevenson, Greg (Aarhus), Tecklenburg, Florian (Bielefeld), Van Rooy, Emmy (Los Angeles), Verasdanis, Charalampos (Thessaloniki)



19.10. – 24.10.2025

Organizers:

Phase Transitions and Turbulence including Fluids

Mi-Ho Giga, Tokyo

Yoshikazu Giga, Tokyo

Chun Liu, Chicago

Anja Schlömerkemper, Würzburg

Tsuyoshi Yoneda, Tokyo

Abstract

How do we model complicated phenomena including fluids like phase transition and turbulence by using differential equations? How do we analyze such equations which are often challenging? The weak-long Oberwolfach Seminar was devoted to such questions. The target audience were PhD students and post-doctoral researchers wishing to be quickly immersed in this modern, active research area.

Participants

Biswas, Tania (Praha), Blawid, Julian (Regensburg), De Anna, Francesco (Würzburg), Eto, Tokuhiro (Villeurbanne), Giga, Mi-Ho (Tokyo), Giga, Yoshikazu (Tokyo), Haselböck, Jonas (Regensburg), Iida, Yoshiki (Tokyo), Kajiwara, Naoto (Gifu), Katayama, Sho (Tokyo), Kirshtein, Arkadz (Corpus Christi), Knopf, Patrik (Regensburg), Körber, Christopher (Praha), Kortum, Joshua (Würzburg), Kosewski, Przemek (Warszawa), Leslie, Trevor (Chicago), Liu, Chun (Chicago), Ma, Lin (Beijing), Matharu, Pritpal (Leipzig), Palma, Filippo (Caserta), Plato, Luisa (Berlin), Sanchez-Simon del Pino, Daniel (Bonn), Schlömerkemper, Anja (Würzburg), Stange, Jonas (Regensburg), Yoneda, Tsuyoshi (Tokyo)



23.11. – 28.11.2025

Moduli Spaces of Canonical Metrics: Metric Riemannian Geometry and Topology

Organizers:

Fei Han, Singapore
Qionglin Li, Nankai
Wilderich Tuschmann, Karlsruhe
Ruobing Zhang, La Jolla

Abstract

How to “visualize” the shape of a manifold? More technically, how can one describe the topological and geometric structures of manifolds in a quantitative way? In modern differential geometry, a fundamental strategy is to appropriately “normalize” the shape by canonical metrics – the Riemannian metrics that satisfy certain nonlinear partial differential equations. The week-long seminar was devoted to investigating canonical metrics and addressed several basic questions, such as: how well do the canonical metrics perform (regularity theory); which kinds of complications may appear (degeneration theory); what does the space of all canonical metrics look like (moduli space theory)?

Participants

Chen, Yifan (Roma), Dayaprema, Anuk (Madison), Han, Fei (Singapore), Lauth, Kilian (Karlsruhe), Lee, Sanghoon (Hong Kong), Li, Jiangtao (La Jolla), Li, Mingyang (Stony Brook), Li, Qionglin (Nankai, Tianjin), Li, Yuanchu (Singapore), Liu, Hongyi (Princeton), Liu, Zhiming (Shanghai Shi), Ma, Weihan (Tianjin), Navarro, Dimitri (Santa Cruz), Otto, Niklas R. (Dortmund), Qian, Xin (Jyväskylä), Tuschmann, Wilderich (Karlsruhe), Wang, Jian (Beijing), Wang, Jinmin (Beijing), Weng, Liangjun (Pisa), Xu, Liang (La Jolla), Yan, Longhuan (Hefei), Zhang, Mingwei (Freiburg i. Br.), Zhang, Ruobing (La Jolla), Zhang, Wenjia (Hefei)



23.11. – 28.11.2025

Organizers:

Time Parallel Time Integration

Stephanie Friedhoff, Wuppertal

Martin J. Gander, Genève

Laurence Halpern, Paris

Véronique Martin, Amiens

Julien Salomon, Paris

Abstract

Time parallel time integration is a new area of research to solve large scale evolution problems in parallel. When solving such time dependent problems, the time direction is usually not used for parallelization, because the time evolution is perceived as being an entirely sequential process, numerically treated with time stepping methods. When parallelization in space however saturates, the time direction offers itself as a further direction for parallelization. The time direction is however special, because of the causality principle obeyed by time dependent problems: the solution later in time is determined by the solution earlier in time, and not the other way round. Algorithms trying to use the time direction for parallelization must therefore be special, and take this very different property of the time dimension into account. This Oberwolfach Seminar was a first to offer a complete and accessible mathematical introduction to how one can overcome this causality principle and design algorithms which integrate time dependent problems parallel in time.

Participants

Buchholz, Tim (Karlsruhe), Carrel, Benjamin (Villigen), Chen, Ed (New York), Crocoll, Michael (Karlsruhe), Delourme, Bérangère (Villetaneuse), Friedhoff, Stephanie (Wuppertal), Gander, Martin (Genève), Halpern, Laurence (Villetaneuse), Liao, Siwei (Genève), Lu, Liu-Di (Genève), Lucero Lorca, José Pablo (Fort Collins), Lunet, Thibaut (Hamburg), Lyu, Jing (Changchun Jilin), Martin, Véronique (Amiens), McCoid, Conor (Hamilton), Mühlhäuser, Dustin (Karlsruhe), Nick, Jörg (Genève), Outrata, Michal (Praha), Polak, Elias (Fribourg), Salomon, Julien (Paris), Sun, Yafei (Genève), Vanzan, Tommaso (Torino), Wahl, Teilo (Genève), Wang, Bin (Xian, Shaanxi)

3.7. Weitere Fortbildungsveranstaltungen / Further training weeks

Internationale Mathematik-Olympiade 2520a



10.05. – 17.05.2025

Organizers:

Trainings- und Abschlussseminar für die Internationale Mathematik-Olympiade

Patrick Bauermann, Bonn
Uwe Leck, Flensburg

Abstract

The Institute hosted again the final week of the preparation seminars for the German candidates for the International Mathematical Olympiad (IMO). Sixteen pupils made it to the final round of the selection competition. Six of them became part of the team that traveled to the Sunshine Coast in Queensland, Australia, and participated at the IMO. The German selection competition and the preparatory seminars are organized by "Bildung & Begabung", the talent promotion center of the federal and state governments.

Participants

Averbah, David (Kleinmachnow), Böke, Clemens (Löhne), Ding, Tina (Schwäbisch Gmünd), Fischer, Ben (Braunschweig), Husynin, Vladyslav (Würzburg), Jacob, Johannes (München), Keßler, Calum (Königswinter), Kottisch, Leonard (Oldenburg), Krabbenhöft, Lars (Höchstädt), Kurniady, David (Erlangen), Lindenthal, David (Nürnberg), Lörcks, Philipp (Trier), Ma, Jizhe (Bremerhaven), Maluche, Max (Braunschweig), Müller, Eric (Villingen-Schwenningen), Prestin, Jürgen (Lübeck), Riekert, Adrian (Bonn), Schröter, Georg (Berlin), Streun, David (Aachen), Trebst, Philip (Köln)

Photo: Courtesy of the Banach Center



02.11. – 07.11.2025

Modern Algebraic Geometry in Algebraic Combinatorics and Tensors

Organizers:

Joachim Jelisiejew, Warszawa
Mateusz Michałek, Konstanz

Abstract

In recent years, modern algebraic geometry, such as moduli spaces and enumeration, has been very successfully applied to combinatorics and tensors, resolving old conjectures, giving easier proofs of classical theorems, and opening new research paths. This seminar focused on the two main interconnected topics: (1) Interactions between matroid theory, geometry, and intersection theory, as in the recent work of June Huh and beyond, using varieties of complete linear maps and complete quadrics; (2) New invariants of tensors, such as 111-algebra and moduli spaces of tensors from Hilbert schemes of points and its generalisations.

Participants

Amanov, Alimzhan (Kraków), Antolini, Dario (Povo), Bailey, Sarah (Coventry), Barrilli, Enrica (Nice), Bromboszcz, Artur (Kraków), Choi, Doyoung (Daejeon), Collins, Nathaniel (Fort Collins), Cook, Adrian (Edinburgh), Doležálek, Matěj (Konstanz), Flavi, Cosimo (Warszawa), Galgano, Vincenzo (Dresden), Galuppi, Francesco (Warszawa), Jagiella, Jakub (Warszawa), Jelisiejew, Joachim (Warszawa), Kayser, Leonie (Leipzig), Ken, Nikhil (Firenze), Keneshlou, Hanieh (Konstanz), Khezerlou, Parian (Paris), Lesniak, Izabela (Kraków), Liwski, Emiliano (Heverlee), Luan, Yuze (Warszawa), Michalek, Mateusz (Konstanz), Obcowska, Weronika (Warszawa), Oszer, Piotr (Warszawa), Reig Fité, Oriol (Povo), Schmiermann, Reinier F. (Utrecht), Seemann, Sebastian (Leuven), Seynnaeve, Tim (Warszawa), Shatsila, Anatoli (Kraków), Stastny, Colin (Konstanz), Teixeira Turatti, Ettore (Tromsø), Tufo, Federico (Bologna), Villa, Alice (Bologna), Weigert, Julian (Leipzig)

3.8. Oberwolfach Research Fellows

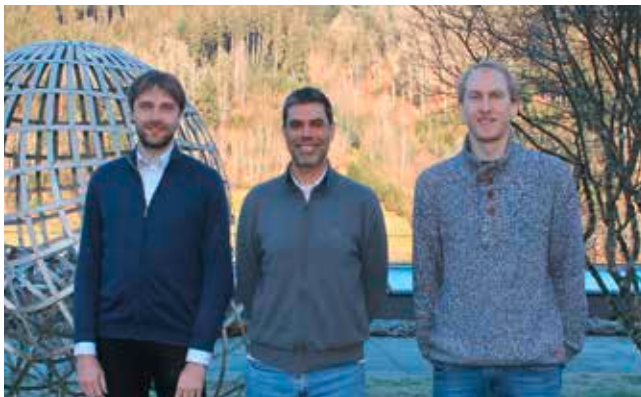


Cristian Giardina, Modena (left)
Frank Redig, Delft (right)
05.01. – 17.01.2025

Michel Brion, Grenoble
Stefan Schröer, Düsseldorf
09.02. – 14.02.2025
(without photo)



Nikolaos Chalmoukis, Milano (right)
Alberto Dayan, Saarbrücken (left)
23.02. – 07.03.2025



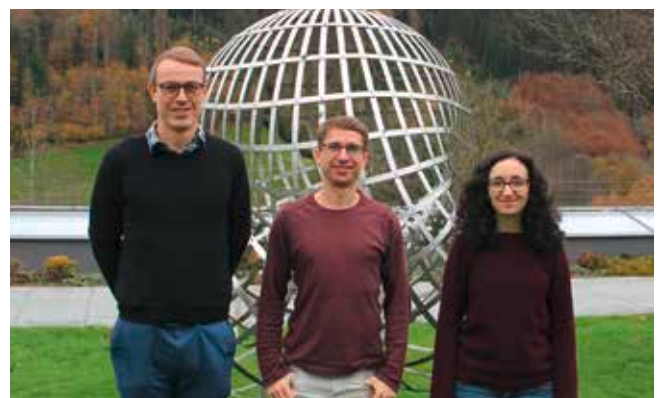
Michal Jex, Praha (left)
Mathieu Lewin, Paris (middle)
Peter Skovlund Madsen, München (right)
12.01. – 24.01.2025



Karin Erdmann, Oxford, UK (right)
Adam Skowyrski, Torun (left)
23.02. – 07.03.2025



Alessia Mandini, Rio de Janeiro (2nd right)
Johan Martens, Edinburgh (1st right)
Guido Pezzini, Roma (2nd left)
Bart Van Steirteghem, Erlangen (1st left)
09.02. – 21.02.2025

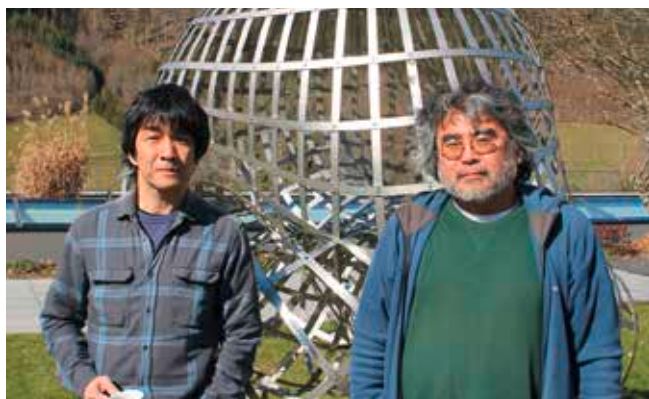


Richard Höfer, Regensburg (middle)
Amina Mecherbet, Paris (right)
Richard Schubert, Bonn (left)
23.02. – 28.02.2025

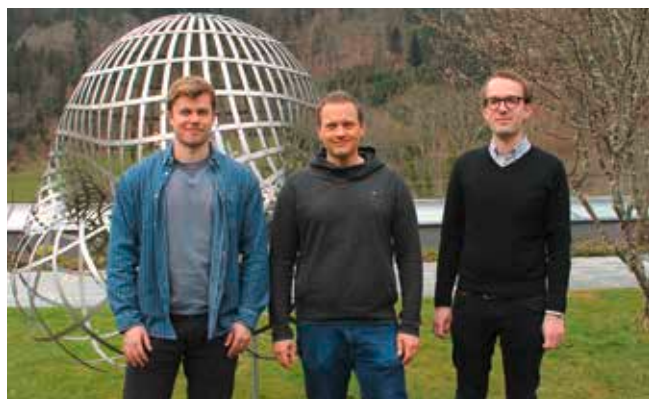
Balázs Kovács, Paderborn
Buyang Li, Hong Kong
Christian Lubich, Tübingen
 02.03. – 07.03.2025
 (without photo)



Guillermo P. Curbera, Sevilla (left)
Werner J. Ricker, Eichstätt (right)
 09.03. – 28.03.2025



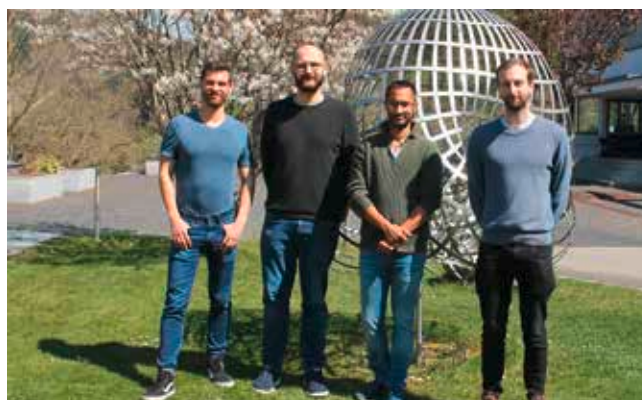
Kenji Iohara, Villeurbanne (left)
Yoshihisa Saito, Tokyo (right)
 09.03. – 21.03.2025



Siegfried Beckus, Potsdam (middle)
Ulrik Bo Rufus Enstad, Oslo (left)
Jordy Timo van Velthoven, Wien (right)
 16.03. – 28.03.2025



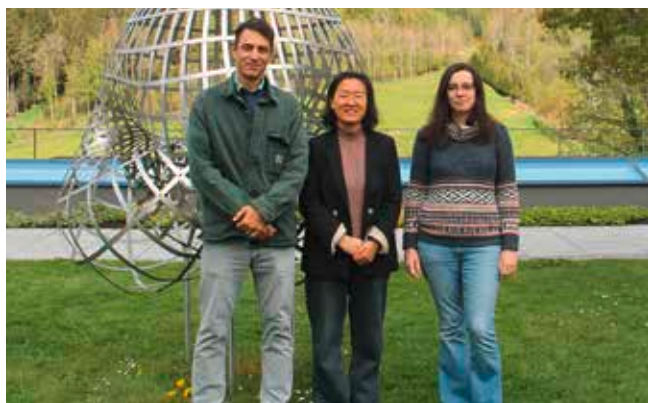
Ya'akov Peterzil, Haifa (left)
Sergei Starchenko, Notre Dame (right)
 30.03. – 05.04.2025



Lucas Broux, Leipzig (1st right)
Nicolas Clozeau, Toulon (1st left)
Harprit Singh, Edinburgh (2nd right)
Rhys James Steele, Leipzig (2nd left)
 30.03. – 11.04.2025



Brendan Guilfoyle, Tralee Co. Kerry (right)
Wilhelm Klingenberg, Durham (left)
 13.04. – 25.04.2025



Roozbeh Hazrat, Sydney (left)
Huanhuan Li, Hefei (middle)
Nora Szakacs, Manchester (right)
 13.04. – 25.04.2025



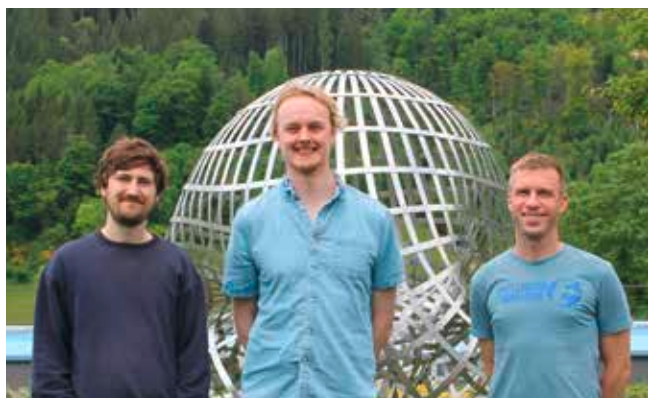
Karl H. Hofmann, Darmstadt (right)
Linus Kramer, Münster (left)
 18.05. – 30.05.2025



Yury Grabovsky, Philadelphia (right)
Lev Truskinovsky, Paris (left)
 27.04. – 16.05.2025



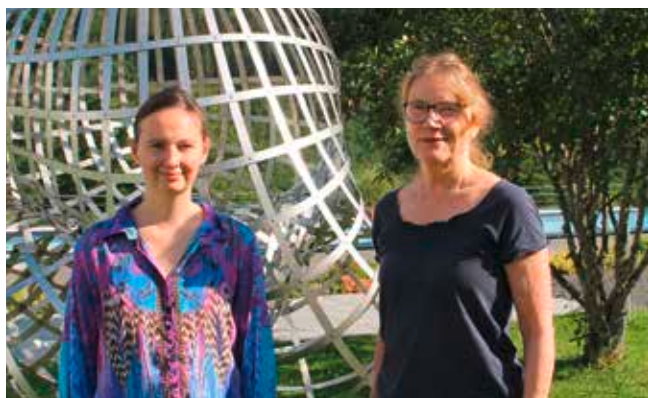
Ana Cristina Ferreira, Braga (right)
Henrik Winther, Tromsø (left)
 25.05. – 06.06.2025



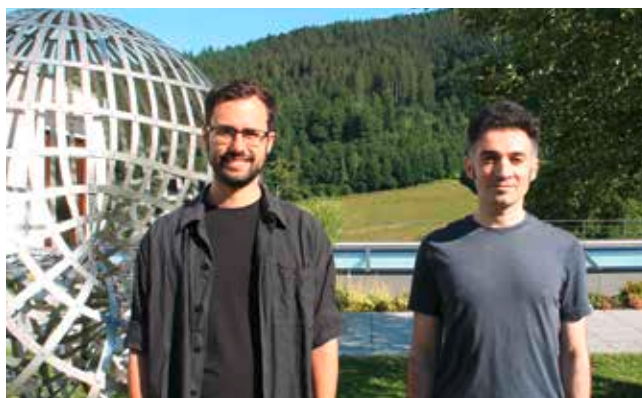
Andrew James Graham, Bonn (left)
Sean Howe, Salt Lake City (right)
Pol van Hoften, Amsterdam (middle)
 04.05. – 16.05.2025



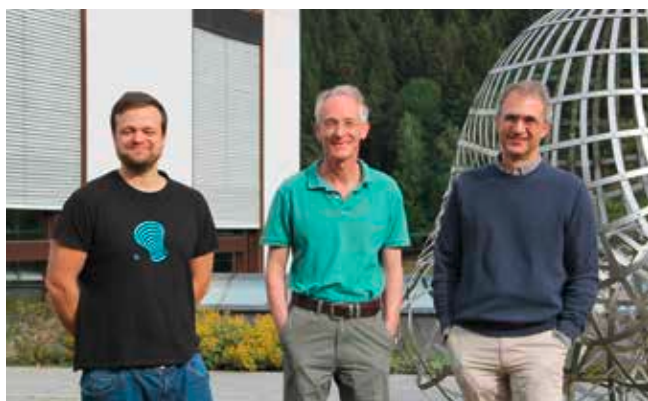
Sylwia Antoniuk, Poznań (2nd left)
Alberto Espuny Diaz, Heidelberg (1st right)
Kalina Petrova, Vienna (2nd right)
Miloš Stojaković, Novi Sad (1st left)
 01.06. – 13.06.2025



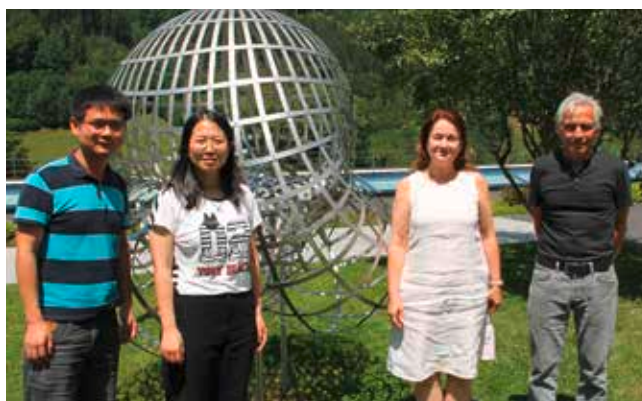
Agatha Atkarskaya, Jerusalem (left)
Katrin Tent, Münster (right)
 08.06. – 20.06.2025



Arman Darbinyan, Southampton (right)
Francesco Fournier-Facio, Cambridge (left)
Francis Wagner, Columbus
 29.06. – 11.07.2025

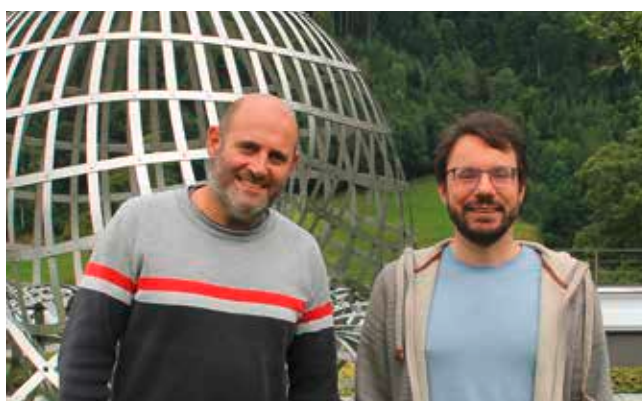


Thomas Baumgarte, Brunswick (right)
Carsten Gundlach, Southampton (middle)
David Hilditch, Lisboa (left)
 15.06. – 27.06.2025

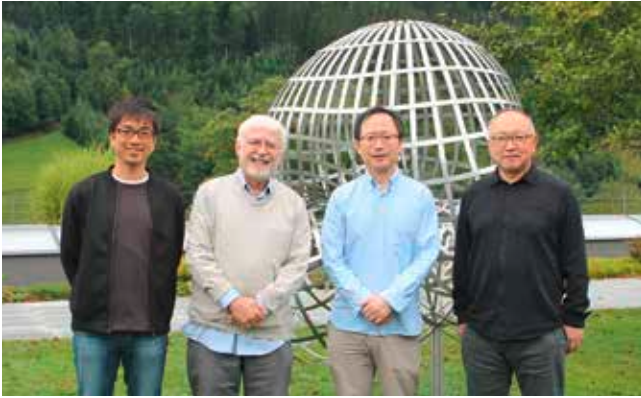


Eduard Feireisl, Praha (1st right)
Mária Lukáčová-Medvidová, Mainz
 (2nd right)
Bangwei She, Beijing (1st left)
Yuhuan Yuan, Nanjing (2nd right)
 13.07. – 25.07.2025

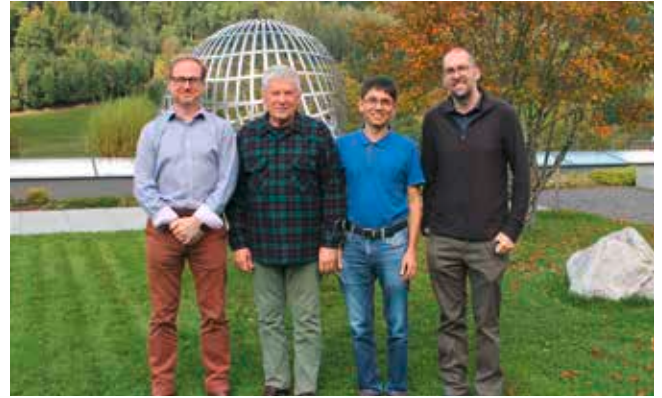
Brandon Alberts, Ypsilanti MI
Alina Bucur, La Jolla
 22.06. – 04.07.2025
 (without photo)



Michael Brandenbursky, Beer Sheva (left)
Jarek Kedra, Aberdeen
Michal Marcinkowski, Wroclaw (right)
Egor Shelukhin, Montreal (virtual part.)
 27.07. – 15.08.2025



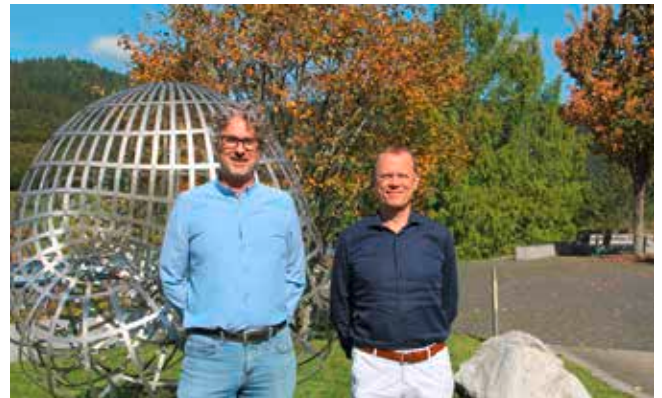
Takahisa Igata, Tokyo (1st left)
Tetsuya Shiromizu, Nagoya (2nd right)
Gilbert Weinstein, Ariel (2nd left)
Sumio Yamada, Tokyo (1st right)
 17.08. – 22.08.2025



Alexander Belton, Plymouth (1st left)
Dominique Guillot, Newark (1st right)
Apoorva Khare, Bengaluru (2nd right)
Mihai Putinar, Santa Barbara (2nd left)
 21.09. – 10.10.2025



Alexander Degtyarev, Bilkent (left)
Ilia Itenberg, Paris (right)
 17.08. – 29.08.2025



Andrei Moroianu, Orsay (left)
Uwe Semmelmann, Stuttgart (right)
 21.09. – 03.10.2025



Patricia Alonso Ruiz, Jena (left)
Eva Kopfer, Bonn (right)
 14.09. – 19.09.2025



Nicole Berline, Saint-Point (right)
Maria Velleda Baldoni, Rome (left)
Michele Vergne, Paris (middle)
 12.10. – 24.10.2025



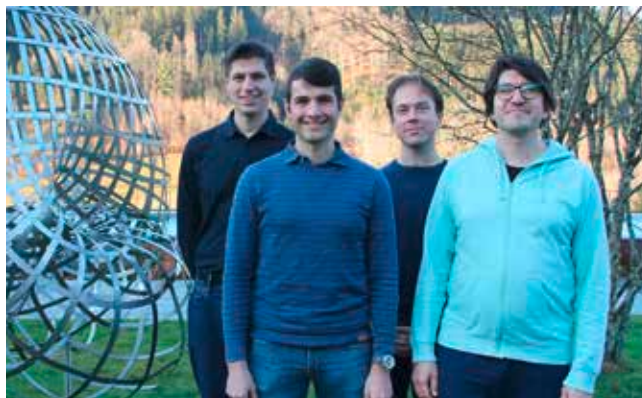
Georgios Kydonakis, Patras (left)
Eugen Rogozinnikov, Seoul (right)
 26.10. – 07.11.2025



Andrei Moroianu, Orsay (right)
Carlos Shahbazi, Madrid (left)
 30.11. – 12.12.2025



Miguel Barrero, Aberdeen (3rd left)
Tobias Barthel, Bonn (1st right)
Luca Pol, Regensburg (1st left)
Neil P. Strickland, Sheffield (2nd left)
Jordan Williamson, Praha (2nd right)
 16.11. – 28.11.2025



Michael Alexander Daas, Bonn (1st left)
Havard Damm-Johnsen, Göteborg
 (2nd right)
Lennart Gehrmann, Bielefeld (1st right)
Sören Sprehe, Bielefeld (2nd left)
 07.12. – 19.12.2025



Boris Kruglikov, Tromsø (right)
Andrea Santi, Firenze (left)
 23.11. – 05.12.2025

3.9. Oberwolfach Leibniz Fellows



Yuying Xu, Nanjing

06.07. – 22.08.2025

19.10. – 21.11.2025

external guest researchers:

Steffen König, Stuttgart

14.08. – 17.08.2025

02.11. – 16.11.2025

Junhua Zheng, Stuttgart

10.08. – 15.08.2025

26.10. – 07.11.2025

Frederik Marks, Stuttgart

02.11. – 07.11.2025



Jialong Deng, Beijing

21.09. – 19.12.2025

external guest researcher:

Nicolas Pischke, Darmstadt

03.12. – 05.12.2025



Thu Ha Trieu, Lyon

13.07. – 11.10.2025

external guest researchers:

Marie-Jose Bertin, Maisons Alfort

10.09. – 19.09.2025

Odile Lecacheux, Tranault

10.09. – 19.09.2025

3.10. Publikationen

Das MFO unterstützt die Idee von Open Access. Alle Publikationen sind auf der Webseite publications.mfo.de elektronisch frei verfügbar (mit Ausnahme der Buchreihe Oberwolfach Seminars beim Birkhäuser Programm von Springer).

Oberwolfach Reports (OWR)

OWR wird in Zusammenarbeit mit EMS Press veröffentlicht und enthält die Ergebnisse der Workshops, Miniworkshops und Arbeitsgemeinschaften in Form von erweiterten Abstracts der Vorträge. Für 2025 sind die Bände OWR 22.1 bis 22.4 mit mehr als 3.000 Seiten erschienen.

Oberwolfach Seminars (OWS)

In dieser Buchreihe werden die Inhalte der Oberwolfach Seminare veröffentlicht. Sie entsteht in Zusammenarbeit mit dem Birkhäuser Programm des Springer Verlags (Basel). Im Jahr 2025 sind zwei Bände erschienen.

- Oberwolfach Seminars Vol. 55: Stochastic Geophysical Fluid Dynamics. Franco Flandoli, Darryl Holm, Amru Hussein, Martin Saal (2025)
- Oberwolfach Seminars Vol. 56: Variational and Information Flows in Machine Learning and Optimal Transport. Wuchen Li, Bernhard Schmitzer, Gabriele Steidl, François-Xavier Vialard, Christian Wald (2025)

3.10. Publications

The MFO supports the idea of open access. Hence, all publications are freely available on the website publications.mfo.de (with the exception of the book series Oberwolfach Seminars from the Birkhäuser program at Springer).

Oberwolfach Reports (OWR)

OWR is published in cooperation with EMS Press and contains extended abstracts of the talks in the Workshops, Mini-Workshops, and Arbeitsgemeinschaften. For 2025, the issues OWR 22.1 to 22.4 were published with more than 3,000 pages in total.

Oberwolfach Seminars (OWS)

This book series publishes the contents of the Oberwolfach Seminars. It is produced in collaboration with the Birkhäuser program of Springer Verlag (Basel). In 2025 two volumes were published.



Oberwolfach Seminars, Vol. 55 & 56

Oberwolfach Preprints (OWP)

In OWP werden Resultate von längerfristigen Forschungsaufenthalten publiziert, aber auch von mathematischen Vorträgen im Rahmen von besonderen Veranstaltungen des MFO. Im Jahr 2025 sind die folgenden Preprints erschienen:

- On the Complexity of Epimorphism Testing with Virtually Abelian Targets [OWP-2025-01] Elder, Murray; Shen, Jerry; Weiss, Armin
- Domain-Scaled Regular Variation: Mathematical Foundations for a New Tail Process [OWP-2025-02] Strokorb, Kirstin; Oesting, Marco; De Fondeville, Raphaël
- Quadratically Enriched Plane Curve Counting via Tropical Geometry [OWP-2025-03] Jaramillo Puentes, Andrés; Markwig, Hannah; Pauli, Sabrina; Röhrle, Felix

Oberwolfach Preprints (OWP)

OWP mainly contains research results related to a longer stay in Oberwolfach, but this can also include lectures held during special occasions in Oberwolfach. The following preprints were published in 2025:

- When Alcoved Polytopes Add
[OWP-2025-04] Early, Nick; Kühne, Lukas; Monin, Leonid
- Spectral Regularity and Defects for the Kohmoto Model
[OWP-2025-05] Beckus, Siegfried; Bellissard, Jean; Thomas, Yannik
- Generalized Bose-Einstein Condensation in the Kac-Luttinger Model
[OWP-2025-06] Boccato, Chiara; Kerner, Joachim; Pechmann, Maximilian; Spitzer, Wolfgang
- Renormalised Models for Variable Coefficient Singular SPDEs
[OWP-2025-07] Broux, Lucas; Singh, Harprit; Steele, Rhys
- On Angular Momentum Algebras and their Relations
[OWP-2025-08] Calvert, Kieran; de Martino, Marcelo; Oste, Roy
- Renormalisation of Singular SPDEs with Correlated Coefficients
[OWP-2025-09] Clozeau, Nicolas; Singh, Harprit
- Parabolic Normalizers in Finite Coxeter Groups as Subdirect Products
[OWP-2025-10] Douglass, J. Matthew; Pfeiffer, Götz; Röhrle, Gerhard
- Some Notes on Pontryagin Duality of Abelian Topological Groups
[OWP-2025-11] Hofmann, Karl Heinrich; Kramer, Linus
- The q -Deformed Random-to-Random Family in the Hecke Algebra
[OWP-2025-12] Brauner, Sarah; Commins, Patricia; Grinberg, Darij; Saliola, Franco
- Inversion of the Unbounded Finite Hilbert Transform on L^1
[OWP-2025-13] Curbera, Guillermo P.; Okada, Susumu; Ricker, Werner J.
- Scalar Curvature in Dimension 4
[OWP-2025-14] Deng, Jialong

Schnappschüsse moderner Mathematik aus Oberwolfach

In den „Schnappschüssen moderner Mathematik aus Oberwolfach“ bereiten Teilnehmer und Teilnehmerinnen der wissenschaftlichen Programme des MFO einen besonders spannenden Aspekt ihrer Forschung für die interessierte Öffentlichkeit auf. Im Jahr 2025 sind neun Schnappschüsse aus unterschiedlichen mathematischen Gebieten erschienen:

Snapshots of modern mathematics from Oberwolfach

In the “snapshots of modern mathematics from Oberwolfach” participants of the scientific programs at the MFO explain an especially exciting aspect of their research to an interested public. Nine snapshots from distinct mathematical areas have been published in 2025:

- Truncated Fusion Rules for Supergroups
(No. 1/2025) Heidersdorf, Thorsten
- Convex Polytopes and Linear Programs
(No. 2/2025) Joswig, Michael
- Five Ways to Spell ADE
(No. 3/2025) Kaufman, Dani
- The Five Platonic Solids and their Connection to Root Systems
(No. 4/2025) Böhm, Sören
- Trisections of Four-Dimensional Spaces
(No. 5/2025) Blackwell, Sarah

- Brauer's Problems: 60 Years of Legacy
(No. 6/2025) Rizo, Noelia; Schaeffer Fry, Mandi A.
- Brackets, Trees and the Borromean Rings
(No. 7/2025) Jasso, Gustavo
- Is there a Smooth Lattice Polytope which does not have the Integer Decomposition Property?
(No. 8/2025) Hofscheier, Johannes; Kasprzyk, Alexander
- Why Oscillation Counts: Diophantine Approximation, Geometry, and the Fourier Transform
(No. 9/2025) Srivastava, Rajula

Sonderpublikation

Maria Remenyi, Volker Remmert (Hrsg.): „...eine so innige Verwebung sowohl sachlicher wie auch persönlicher Art.“ Zu den Tagungen am Mathematischen Forschungsinstitut Oberwolfach 1945–1960. Mathematisches Forschungsinstitut Oberwolfach (2025).

Der Band ging aus einem für das Frühjahr 2020 geplanten Miniworkshop *History of the Workshops in Oberwolfach, 1944 – ca. 1960* hervor. Aufgrund der Coronapandemie wurde der Workshop in eine Reihe von Online-Projekttreffen umgewandelt. Auf Grundlage der historischen Vortrags- und Gästebücher untersuchten die Teilnehmerinnen und Teilnehmer die sich entwickelnden Tagungstraditionen in den Anfangsjahren des MFO. In den Beiträgen beleuchteten sie die Entwicklung des Instituts vom 1944 gegründeten „Reichsinstitut für Mathematik“ zu einem seit den 1960er Jahren international anerkannten Tagungsort und zeigen, welche Bedeutung die Zusammenkünfte in Oberwolfach für die disziplinäre Entwicklung der Mathematik in der Bundesrepublik Deutschland nach 1945 hatten.

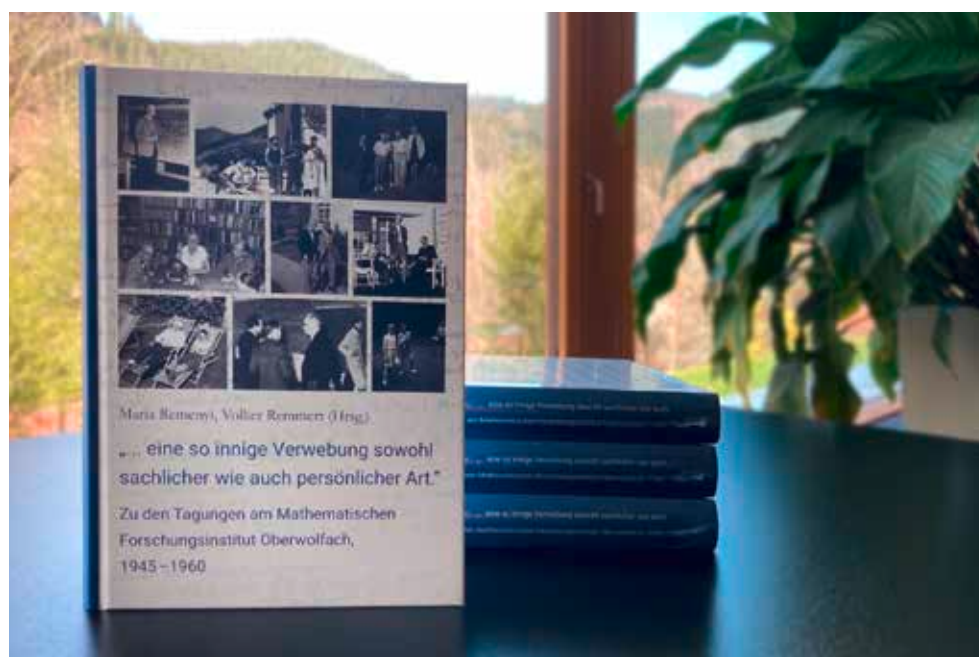
Das Buch wurde als Open-Access-Ebook und in einer Druckauflage von 200 Stück veröffentlicht.

Special publication

Maria Remenyi, Volker Remmert (eds.): „...eine so innige Verwebung sowohl sachlicher wie auch persönlicher Art.“ Zu den Tagungen am Mathematischen Forschungsinstitut Oberwolfach 1945–1960. Mathematisches Forschungsinstitut Oberwolfach (2025).

The volume emerged from a Mini-Workshop entitled *History of the Workshops in Oberwolfach, 1944 – ca. 1960*, which was planned for spring 2020. Due to the coronavirus pandemic, the Mini-Workshop was converted into a series of online project meetings. Based on historical lecture and guest books, the participants examined the developing conference traditions in the early years of the MFO. They shed light on the development of the institute from the “Reichsinstitut für Mathematik” founded in 1944, to an internationally recognized conference venue since the 1960s, and show the significance of the meetings in Oberwolfach for the disciplinary development of mathematics in the Federal Republic of Germany after 1945.

The book was published as an open access ebook and in a print run of 200 copies.



4. Infrastruktur und Finanzen

4.1. Übersicht der Bereiche

Die wissenschaftliche Arbeit der Forschungsgäste wird durch eine effiziente Infrastruktur ermöglicht.

Von besonderer Bedeutung ist die Bibliothek, die in der mathematischen Forschung eine ähnliche Rolle spielt wie das Labor in den Naturwissenschaften. Die Bibliothek des MFO zählt zu den weltweit besten Spezialbibliotheken in der Mathematik und steht den Gästen rund um die Uhr zur Verfügung.

Daneben spielt der Bereich der Informationstechnologie eine wichtige Rolle, sowohl direkt für die wissenschaftliche Arbeit, als auch für die weltweite Kommunikation der Forschenden untereinander.

Zur Planung, Durchführung und Begleitung der wissenschaftlichen Programme waren am Institut etwa 21 Stellen in den Bereichen der wissenschaftlichen und allgemeinen Verwaltung, Bibliothek, IT, Öffentlichkeitsarbeit, Gästebetreuung und Hauswirtschaft besetzt. Für die effiziente, konzentrierte Arbeit der Gäste am MFO sind dabei die abgeschiedene Lage, die hervorragende wissenschaftliche Infrastruktur, und nicht zuletzt auch die ideale Betreuung einschließlich Unterbringung und Verpflegung im Gästehaus, direkt neben dem Tagungs- und Bibliotheksgebäude, wichtige Faktoren.

4.2 Bibliothek

Die Bibliothek des MFO ist für die Forschungsgäste in Oberwolfach das wichtigste Arbeitsmittel. Sie wird intensiv von Teilnehmenden aller Programme genutzt. Viele ziehen eine Einladung nach Oberwolfach anderen Einladungen vor, da sie am MFO Literatur vorfinden, die für sie sonst nicht zugänglich ist. Neben dem hohen internationalen Standard des wissenschaftlichen Programms und den exzellenten Rahmenbedingungen für den persönlichen Gedankenaustausch ist die Bibliothek ein wichtiger Grund für das hohe Ansehen des MFO weltweit.

Der hohe Stellenwert der Bibliothek wird auch deutlich in dem großen Engagement verschiedener Stiftungen wie der Klaus Tschira Stiftung gGmbH, der Marga und Kurt Möllgaard-Stiftung, der VolkswagenStiftung sowie der Carl Friedrich von Siemens Stiftung. So haben die Klaus Tschira Stiftung und die VolkswagenStiftung zu gleichen

4. Facilities and Finances

4.1. Overview on the divisions

The MFO has set up an excellent infrastructure for scientific research activities.

The library represents a vital part of this infrastructure and plays an important role, similar to laboratories in experimental sciences. The MFO's library is one of the world's most excellent libraries in mathematics and can be used by the guest researchers 24 hours a day.

But also information technology is of great importance for assisting research activities, and also to ensure worldwide communication among the scientific community.

For the planning and realization of the scientific program approximately 21 positions in various divisions, such as scientific and administration management, library, IT, outreach and media, guest service, and housekeeping are provided. Besides the excellent scientific infrastructure it is also the Institute's remote location, and the excellent service with board and lodging in our guest house close to the conference and library building, that guarantees efficient and concentrated working conditions for our guests.

4.2 Library

The library is the most important working tool for scientific research in Oberwolfach. It is used intensively by participants of all scientific programs. Many mathematicians prefer an invitation to Oberwolfach to other invitations because they find literature here that is otherwise unavailable for them. In addition to the high international standard of the scientific program and the excellent conditions for the face-to-face exchange of ideas, the library is an important factor for the high reputation of the MFO worldwide.

The high significance of the library is also reflected in the great commitment of various foundations, such as the Klaus Tschira Stiftung gGmbH, the Marga and Kurt Möllgaard-Foundation, the Volkswagen Foundation and the Carl Friedrich von Siemens Foundation. For example, the Klaus Tschira Stiftung and the Volkswagen

Teilen den Erweiterungsbau der Oberwolfacher Bibliothek finanziert und damit Platz für etwa 20 weitere Jahre geschaffen. Die Carl Friedrich von Siemens Stiftung unterstützt die Oberwolfacher Bibliothek seit 1999 mit einem regelmäßigen Betrag für den Erwerb von Büchern. In 2015–2016 konnte durch Mittel der VolkswagenStiftung die Informations- und Kommunikations-Infrastruktur der Bibliothek modernisiert und eine Kompaktanlage für die gebundenen Zeitschriften eingerichtet werden. Darüber hinaus hat die Deutsche Forschungsgemeinschaft (DFG) seit 2004 zahlreiche Projekte im Rahmen des Förderprogramms „Wissenschaftliche Literaturversorgungs- und Informationssysteme“ finanziert.

Bibliothekprofil

Die Oberwolfacher Bibliothek hat die Aufgabe, die Fachliteratur aus allen Bereichen der Mathematik sowie aus angrenzenden Gebieten so vollständig wie möglich zu erwerben und bereit zu stellen. Im Fokus stehen dabei insbesondere mathematische Fachzeitschriften sowie Monographien und Kongressberichte der relevanten Fachverlage. Schwerpunktmäßig werden Bücher in gedruckter Form angeschafft, Zeitschriften hingegen bevorzugt elektronisch. Aber auch E-Books werden seit 2014 gezielt und in Ergänzung zum gedruckten Bestand erworben. Die relevante Literatur wird gekauft, im Tausch gegen institutseigene Publikationen erworben oder als Geschenk empfangen.

Die Bibliothek des MFO ist eine reine Präsenzbibliothek und für die Forschungsgäste rund um die Uhr geöffnet. Sämtliche Bestände stehen innerhalb der Bibliothek ohne Einschränkung zur Verfügung. Es findet keinerlei Ausleihe statt, auch Fernleihe ist nur in begründeten Einzelfällen möglich (z.B. bei Alleinbesitz).

Das MFO nimmt seit 1995 am Südwestdeutschen Bibliotheksverbund (SWB) teil. Die Arbeit im Verbund sowie die durch das Bibliotheksservice-Zentrum Baden-Württemberg (BSZ) als betreuende Institution bereitgestellte Software bedeuten für das Institut eine erhebliche Erleichterung bei der Verwaltung der Bibliotheksbestände.

Bestand

Zum Bestand der Bibliothek gehörten zum Jahresende 2025 ca. 72.100 gedruckte Bücher, darunter 51.500 Monographien und 10.300 Kongressberichte. 141 Bücher konnten mit Mitteln der Carl Friedrich von Siemens Stiftung erworben werden. Die Zahl der E-Books konnte auf etwa 33.300 gesteigert werden.

Foundation have funded the extension of the library building in equal parts, creating space for another 20 years. The Carl Friedrich von Siemens Foundation has supported the Oberwolfach library since 1999 with a regular amount for the purchase of books. In 2015–2016 the MFO received support from the Volkswagen Foundation to modernize the library infrastructure of information and communication and to install compact shelves for the bound journal volumes. In addition, since 2004, the Deutsche Forschungsgemeinschaft (German Research Foundation, DFG) has financed numerous projects within the funding program “Scientific Library Services and Information Systems”.

Library profile

The task of the library in Oberwolfach is to acquire and to provide specialist literature from all fields of mathematics and its neighboring areas as completely as possible. In particular, the acquisition focuses on mathematical journals and monographs as well as on conference proceedings of the relevant academic publishers. Books are primarily acquired in printed form, while journals are preferred electronically. However, since 2014 e-books have also been systematically acquired in addition to the printed stock. The relevant literature is either purchased, acquired in exchange for publications of the Institute, or received as a gift.

The library of the MFO is a reference library and can be used by our research guests 24 hours a day. The complete collection is available within the library without restriction. There is no lending system, interlibrary lends are only possible in justified individual cases (e.g. in the case of exclusive possession).

Since 1995 the MFO has been a member of the Südwestdeutscher Bibliotheksverbund (SWB), which, together with the software provided by the Bibliotheksservice-Zentrum Baden-Württemberg (BSZ) as supporting institution, facilitates the cataloging of our library collection enormously.

Library Holdings

The library’s collection at the end of 2025 included approximately 72,100 printed books, including 51,500 monographs and 10,300 congress proceedings. 141 books were acquired with funds from the Carl Friedrich von Siemens Foundation. The number of e-books has increased to about 33,300.

Vor allem durch DFG-Nationallizenzen sowie die DEAL-Verträge und weitere Konsortiallizenzen stehen am MFO über 15.000 E-Journals zur Verfügung. Die Zahl der Print-Abonnements verringerte sich auf 95 Titel. In den Kompaktregalen befanden sich darüberhinaus ca. 33.000 gedruckte Zeitschriftenbände, nicht alles davon ist digital erhältlich.

Buchausstellung

Die ständige Buchausstellung gibt interessierten wissenschaftlichen Verlagen die Möglichkeit, ihre Neuerscheinungen im Bereich Mathematik am MFO über einen längeren Zeitraum zu präsentieren. Die Bibliothek des MFO profitiert von dieser Kooperation, indem sie die kostenlos gelieferten Neuerscheinungen in ihren Bestand integrieren kann. 2025 gingen insgesamt 674 Bücher im Rahmen der Buchausstellung in den Bibliotheksbestand ein. Wir danken den folgenden Verlagen für ihre Unterstützung und ihr Mitwirken in unserem Buchausstellungsprogramm:

- American Mathematical Society (AMS)
- Atlantis Press (Co-publishing with Springer)
- Birkhäuser Science
- Cambridge University Press
- CRC Press/Taylor & Francis Group
- De Gruyter GmbH & Co. KG
- EMS Press
- International Press of Boston, Inc.
- Iwanami Shoten Publishers
- Mathematical Society of Japan
- Oxford University Press
- Princeton University Press
- Société Mathématique de France (SMF)
- Springer Nature
- Springer Spektrum
- XYZ Press by AwesomeMath (distributed by AMS)

Oberwolfach Photo Collection

Zum Bibliotheksbestand gehört eine umfangreiche Sammlung an Porträts von Mathematikern und Mathematikerinnen, zusammengetragen durch Herrn Prof. Dr. Konrad Jacobs, Erlangen. Diese Sammlung ist im Jahr 2004 mit Hilfe des Springer Verlags Heidelberg digitalisiert worden; sie steht im Internet mit verschiedenen Recherche-Funktionen frei zur Verfügung. Die

Mainly through DFG National Licences as well as the DEAL contracts and other consortia licences, more than 15,000 e-journals are available at the MFO. The number of print subscriptions has decreased to 95 titles. Additionally, the compact shelves of the library contain about 33,000 bound journal volumes, where not all of them are also electronically available.

Book exhibition

The permanent book exhibition enables academic publishers to present their new publications in the field of mathematics at the MFO for a certain period of time. The library of the MFO benefits from this cooperation, because all books from the exhibition can be included free of charge into the inventory of the library. In the year 2025 the library received a total of 674 books this way. We wish to thank the following publishers for taking part in our book exhibition program:

Oberwolfach Photo Collection

The inventory of the library includes a large collection of mathematician portraits, collected by Prof. Dr. Konrad Jacobs, Erlangen. This collection has been digitized in the year 2004 with support of the publisher Springer Heidelberg. It is freely available on the internet with a variety of search functions. The underlying database is an in-house development of the MFO. The collection

zugrunde liegende Datenbank ist eine Eigenentwicklung des MFO. Die Sammlung wird laufend ergänzt durch eigene Aufnahmen sowie durch externe Beiträge. Sie wird unter anderem für den Bereich Mathematik in der Wikipedia unter den Bedingungen der Creative Commons License Attribution-Share Alike 2.0 Germany sowie in zunehmendem Maße von Verlagen für deren Publikationen genutzt. Ende 2025 waren ca. 25.120 Fotos in der Datenbank enthalten.

4.3. IT

Die IT-Abteilung des MFO stellt den Institutsangehörigen, den Gremien und den Gästen effiziente IT-Arbeitsumgebungen zur Verfügung. Sie unterstützt die Bibliothek und den Bereich der Öffentlichkeitsarbeit bei Diensten für die mathematische Community und die interessierte Öffentlichkeit. Dabei sind Informationssicherheit und Datenschutz wichtige Aspekte, die entsprechend berücksichtigt werden.

Verwaltungsbereich

Die Verwaltung der Tagungen und der längeren Forschungsaufenthalte erfolgt mit der am MFO entwickelten Software „owconf“, die Anforderungen von wissenschaftlicher Begutachtung, Konferenzmanagement und Hotelsoftware in sich vereinigt. In den vergangenen Jahren wurde die Software stetig weiterentwickelt. Zahlreiche neue Anforderungen – sowohl in technischer Hinsicht als auch aus Benutzersicht – erforderten jedoch eine grundlegende Überarbeitung, so dass 2023 mit der Erstellung einer neuen Version begonnen wurde. Große Teile der neuen Software sind bereits im Einsatz. Einzelne Module befinden sich noch in der Entwicklung.

Kommerzielle Software wird in den Bereichen Finanzbuchhaltung, Personalverwaltung sowie beim Bibliothekskatalog und der Literaturrecherche eingesetzt.

Das Verwaltungspersonal arbeitet hauptsächlich mit Remote-Desktop-Sitzungen, die von den PC-Arbeitsplätzen oder per VPN von mobilen Arbeitsplätzen aus genutzt werden.

Gästebereich

Wegen der relativ kurzen Aufenthalte der Gäste sind alle IT-Angebote so intuitiv wie möglich gestaltet. Die Gäste erhalten persönliche Nutzerkonten für die Online-Angebote der Bibliothek, drahtlosen und kabelgebundenen Internetzugang sowie Scan- und Druckmöglichkeiten.

Alle Vortragsräume sind mit moderner Präsentations- und Videokonferenztechnik ausgestattet.

is continuously supplemented by in-house photographs and contributions by mathematicians worldwide. Among other things, the collection is used for the field of mathematics in Wikipedia according to the conditions of the Creative Commons License Attribution-Share Alike 2.0 Germany. Increasingly, publishers use the collection as well for their publications. By the end of 2025 the database contained approximately 25,120 photos.

4.3. IT

The IT department of the MFO provides an efficient IT infrastructure for the employees of the Institute, the committees, and the visiting scientists. Furthermore, the IT department supports the library and the public relations of the MFO with regard to services for the mathematical community and the interested public. Data security and data protection are important tasks, taken into account throughout.

Administrative sector

The databased software “owconf”, developed in-house, handles tasks arising from scientific management, conference management and guesthouse administration. The software has been continuously enhanced over the past years. Numerous new requirements – both from a technical and user perspective – now afforded a fundamental revision, so work on a new version started in 2023. Much of the new software is already in use. Some modules are still under development.

Commercial software is used for financial accounting and human resources, for the library catalog and the literature search portal.

The administrative staff mainly works with remote desktop sessions, which are accessed from the PC workstations or from mobile workstations via VPN.

Guests' working environments

Due to the relatively short stays of the guest scientists, all services are designed as easy to use as possible. Guest scientists are provided with personal accounts for the online services of the library, wifi and cable-bound ethernet connection as well as scan and print facilities.

The IT section maintains modern presentation and videoconference equipment in all lecture

Auch für Kleingruppen und Einzelpersonen in den Langzeitprogrammen des MFO stehen Videokonferenzsysteme zur Verfügung.

Webdienste

Die Webdienste für die Gäste und die weitere mathematische Community bieten Informationen über die Angebote des MFO, künftige und vergangene Forschungsprogramme und – in Zusammenarbeit mit der Bibliothek – freien Zugang zu Publikationen des Instituts. Der spezielle Webdienst „Oberwolfach Photo Collection“ ist eine Eigenentwicklung des MFO.

Unterstützung der Öffentlichkeitsarbeit

Die IT-Abteilung unterstützt die Öffentlichkeitsarbeit des MFO, insbesondere die „Schnappschüsse moderner Mathematik aus Oberwolfach“, für deren Produktion sie die Infrastruktur bereitstellt. Außerdem betreut die IT des MFO das Oberwolfacher Museum für Mineralien und Mathematik „MiMa“ (s. Abschnitt 4.4.: Öffentlichkeitsarbeit). Ausgewählte Exponate werden auch direkt am Institut den Forschungsgästen über einen Touchscreen bereitgestellt.

4.4. Öffentlichkeitsarbeit

Das MFO richtet sich in seiner Öffentlichkeitsarbeit sowohl an wissenschaftliche als auch an nicht-wissenschaftliche Zielgruppen. Die wissenschaftliche Kernzielgruppe, bestehend aus Mathematikern und Mathematikerinnen sowie Forschenden in angrenzenden Gebieten, erhält regelmäßig Informationen über anstehende Veranstaltungen und wissenschaftliche Programme des MFO. Das MFO verschickt dazu einen halbjährlichen Rundbrief per Email, informiert auf der eigenen Webseite und verbreitet Flyer und Poster. Außerdem nutzt das Institut die angebotenen Informationskanäle der mathematischen Fachgesellschaften, z.B. DMV und EMS.

Zusätzlich zur wissenschaftlichen Kernzielgruppe richtet sich das MFO an im weiteren Sinne forschungsinteressierte Gruppen, insbesondere an Schülerinnen und Schüler, Studierende, Lehrkräfte und Wissenschaftsredaktionen, sowie an die breite Öffentlichkeit. Das Ziel ist es, das Verständnis für die Bedeutung der Mathematik zu fördern. Das MFO verfolgt dazu drei miteinander vernetzte Aktivitäten: Das Institut ist Mitbetreiber des Museums für Mineralien und Mathematik in Oberwolfach, es ist Herausgeber der Open-Source Schriftenreihe „Schnappschüsse moderner Mathematik aus Oberwolfach“ und es ist Teilhaber und Kooperationspartner der IMAGINARY gGmbH.

rooms. Video conference systems are also available for small groups and individuals in the long-term programs of the MFO.

Web services

Web services for the guest scientists and the wider mathematical community include information about MFO facilities, future and past research programs at the MFO and open access to publications of the Institute in collaboration with the MFO library. The special web service “Oberwolfach Photo Collection” has been developed in-house.

Support of outreach activities

The IT section also supports the outreach activities of the MFO, in particular it supplies the infrastructure for producing the “snapshots of modern mathematics from Oberwolfach”. Moreover, the IT section services the Museum for Minerals and Mathematics “MiMa” (see section 4.4.: Outreach and Media). Selected exhibits are also provided to our research guests at the Institute on a touchscreen.

4.4. Outreach and media

In its outreach the MFO addresses both academic and non-academic target groups. The core academic target group, consisting of mathematicians and researchers in adjacent areas, regularly receives information on forthcoming events and scientific programs of the MFO. The MFO sends a biannual newsletter via email, informs on its website and distributes posters and flyers. The Institute also uses the information channels offered by national and international mathematical societies, e.g. of the German Mathematical Society (DMV) and the European Mathematical Society (EMS).

In addition to the core academic target group, the MFO addresses groups interested in research in a broader sense, in particular pupils, students, teachers and science journalists, as well as the general public. The main objective with regard to these audiences is to promote the understanding of the importance of mathematics and modern mathematical research. The MFO pursues three interlinked activities: The Institute is co-operator of the Museum of Minerals and Mathematics in Oberwolfach, it is the publisher of the open-source article series “snapshots of modern mathematics from Oberwolfach” and it is shareholder and cooperation partner of the IMAGINARY gGmbH.

Mathematik im MiMa

Seit 2010 betreibt das MFO gemeinsam mit dem Verein der Freunde von Mineralien und Bergbau und der Gemeinde Oberwolfach das MiMa. Das Museum für Mineralien und Mathematik zeigt eine einzigartige Sammlung an Mineralien aus dem Schwarzwald und erklärt ihre Formen und Symmetrien in interaktiven mathematischen Installationen. Der mathematische Teil der Ausstellung bietet kunstvolle Einblicke in die Mathematik und lädt dazu ein, mathematische Phänomene mit interaktiven Programmen, Hands-on-Exponaten und Bildern spielerisch zu erkunden. Ein Schwerpunkt liegt auf den Grundlagen der Kristallografie. Durch die Verknüpfung von Mathematik und Mineralogie bietet das Museum einen interdisziplinären Zugang zu beiden Wissenschaften und vereint zwei Besonderheiten der Region unter einem Dach.

Die Ausstellung richtet sich an ein breites Publikum. Ein besonderer Schwerpunkt liegt auf den Schulen der Region, für die spezielle Führungen angeboten werden. Im Rahmen der Reihe „Kultur im MiMa“ finden außerdem Veranstaltungen zu unterschiedlichen Themen aus Mathematik und Mineralogie statt.

Im Jahr 2025 verzeichnete das MiMa über 5.800 Besucher.

Schnappschüsse moderner Mathematik

Das Ziel der „Schnappschüsse moderner Mathematik aus Oberwolfach“ ist es, mathematische Ideen und Probleme in verständlicher Art und Weise einem breiten Publikum zu vermitteln. Die Artikel sollen spannende Einblicke in die aktuelle mathematische Forschung bieten. Die Schnappschüsse werden von Teilnehmern der wissenschaftlichen Programme des MFO geschrieben. Ein Team aus Editorinnen und Editoren unterstützt sie dabei. Das MFO veröffentlicht die Schnappschüsse unter einer Creative Commons Lizenz.

Das Schnappschuss-Projekt hat zum Ziel, Verständnis und Wertschätzung für moderne Mathematik und mathematische Forschung in der interessierten Öffentlichkeit weltweit zu fördern. Die angestrebte Leserschaft besteht aus Mathematiklehrkräften, Wissenschaftsjournalistinnen und -journalisten, Studierenden sowie fortgeschrittenen Schülerinnen und Schülern.

Das Projekt wird von Dr. Anja Randecker koordiniert. Sie ist als Chefredaktorin für das Editieren der Texte verantwortlich. Im Redaktionsteam wirken außerdem mit: Dr. Raphael Appenzeller, Dr. Barkat Bhayo, Victor Bloch, Lael Edwards-Costa,

Mathematics at the MiMa

Since 2010 the MFO engages in the MiMa, together with the association of the Friends of Minerals and Mining in Oberwolfach and the municipality Oberwolfach. The museum for minerals and mathematics shows a one-of-a-kind collection of minerals from all over the Black Forest and explains their forms and symmetries with interactive mathematical applications. The maths exhibition delivers aesthetic insights into mathematics and enables visitors to playfully explore mathematical phenomena using interactive programs, hands-on exhibits, and images. A clear focus is put on the mathematical foundations of crystallography. Through the combination of mathematics and mineralogy, the museum offers an interdisciplinary approach to both sciences and presents two unique features of the region in one single spot.

The exhibition is aimed at a broad audience. A special focus is on the schools of the region, for which special tours are offered. Within the “Culture in MiMa” series, there are also events on various topics from mathematics and mineralogy.

In 2025, the MiMa was visited by over 5,800 people.

Snapshots of modern mathematics

The aim of the “snapshots of modern mathematics from Oberwolfach” is to explain mathematical problems and ideas in an understandable way to a broader audience. They shall provide exiting insights into current mathematical research. The snapshots are written by participants of the scientific program at the MFO. A team of editors assists them in communicating complicated matters. The MFO publishes the snapshots for free download under a Creative Commons license.

The snapshot project is designed to promote the understanding and appreciation of modern mathematics and mathematical research in the interested public world-wide. The targeted readership consists of mathematics teachers, science journalists, undergraduate students and advanced high school pupils.

The snapshots project is coordinated by Dr. Anja Randecker. As senior editor she is responsible for the editing process of the snapshots. The team of junior editors consisted of Dr. Raphael Appenzeller, Dr. Barkat Bhayo, Victor Bloch, Lael

Dr. Michela Egidi, Dr. Carina Geldhauser, Dr. Martin Günter, Natan Dominko Kobilica, Daniel Kronberg, Dr. Sara Munday, Dr. Oliver Nagy, Georg Schindling, Elisabeth aus dem Siepen, Anup Anand Sing, Manuel Staiger, Noam Szyfer, Joonas Mikael Vättö und Xenia Zimmermann. Im Laufe des Jahres wurden neun Schnappschüsse publiziert (vgl. Publikationen in Kapitel 3.10).

Zusammenarbeit mit IMAGINARY

IMAGINARY startete am MFO anlässlich des Wissenschaftsjahres der Mathematik 2008 als interaktive Wanderausstellung und entwickelte sich über die Jahre zu einer Online-Plattform für interaktive Mathematik-Vermittlung. Seit 2016 ist IMAGINARY eine selbständige gemeinnützige GmbH mit einem breiten Spektrum an Dienstleistungen in der Mathematikkommunikation. Das MFO ist Teilhaber der Gesellschaft und kooperiert mit IMAGINARY im Bereich seiner Öffentlichkeitsarbeit, insbesondere bei den Schnappschüssen und dem MiMa. Beide Projekte gingen als Teilprojekte aus IMAGINARY hervor und sind heute noch am MFO angesiedelt. Im MiMa unterstützt IMAGINARY das MFO bei der Auswahl und Implementierung neuer Exponate. Die Schnappschüsse werden maßgeblich über die IMAGINARY-Plattform verbreitet.

4.5. Verwaltung und Hauswirtschaft

Aufgrund der Beschlüsse der Gemeinsamen Wissenschaftskonferenz (GWK) erstellt das MFO als Mitglied der Leibniz-Gemeinschaft seit dem Haushaltsjahr 2006 ein Programmbudget als Grundlage für die gemeinsame Finanzierung durch Bund und Länder.

Das Tagungsgebäude liegt dem Gästehaus direkt gegenüber und wurde 1975 mit Mitteln der VolkswagenStiftung erbaut. Es bietet den Forschungsgästen exzellente Arbeitsmöglichkeiten und umfasst die Bibliothek, mehrere Vortrags- und Diskussionsräume, sowie zahlreiche Einzelarbeitsplätze. Ferner ist die wissenschaftliche Verwaltung dort untergebracht. Im Mai 2007 konnte der Erweiterungsbau der Bibliothek, finanziert von der Klaus Tschira Stiftung und der VolkswagenStiftung, feierlich eingeweiht werden. Die Nähe von Tagungsgebäude und Gästehaus erweist sich als sehr effizient, bietet sie den Gästen doch rund um die Uhr die Möglichkeit zu kreativer Arbeit, was intensiv genutzt wird. Im Frühjahr 2010 wurde die Sanierung des Gästehauses abgeschlossen.

Edwards-Costa, Dr. Michela Egidi, Dr. Carina Geldhauser, Dr. Martin Günter, Natan Dominko Kobilica, Daniel Kronberg, Dr. Sara Munday, Dr. Oliver Nagy, Georg Schindling, Elisabeth aus dem Siepen, Anup Anand Sing, Manuel Staiger, Noam Szyfer, Joonas Mikael Vättö and Xenia Zimmermann. Nine snapshots have been published in this year (s. publications in section 3.10).

Cooperation with IMAGINARY

IMAGINARY started at the MFO on the occasion of the science year of mathematics in 2008 as an interactive traveling exhibition and developed over the years to an online platform for interactive mathematics communication. In 2016 IMAGINARY became an independent non-profit company (gGmbH) offering a wide range of services in mathematics communication. The MFO is a shareholder of the company and cooperates with it within the scope of public relations – in particular, with regard to the snapshots and the MiMa. Both projects were once founded as subprojects of IMAGINARY and are continued by the MFO. With regard to the MiMa, IMAGINARY supports the MFO in the selection and implementation of new exhibits. The snapshots are largely distributed via the IMAGINARY platform.

4.5. Administration and housekeeping

According to the resolution of the Joint Science Conference (Gemeinsame Wissenschaftskonferenz GWK), the MFO as a member of the Leibniz Association, has established a budget-plan since 2006 as a basis for the common financing by the federation of Germany and the federal states.

The library building is located immediately opposite the guest house and was built with funds from the Volkswagen Foundation in 1975. Hosting the library, several lecture halls and discussion rooms, as well as numerous individual workplaces it offers excellent working conditions for scientific research. The offices of the scientific administration are also part of this building. The extension of the library, funded by the Klaus Tschira Foundation and the Volkswagen Foundation was ceremonially inaugurated in May 2007. The short distance between the guest house and the library building has proved very convenient as it offers scientists the possibility to work at any time, which is used extensively. Since spring 2010 the renovation measures in the guest house have been terminated.

Der Verwaltungsbereich umfasst derzeit 10,87 besetzte Stellen für die wissenschaftliche Verwaltung (Organisation der Workshops, Öffentlichkeitsarbeit, Drittmittelprojekte), die Bibliothek, die IT sowie für die allgemeine Verwaltung (Finanzverwaltung, Beschaffungswesen, Personalsachbearbeitung, Vertragswesen, usw.) und die Gästebetreuung.

Der Hauswirtschaftsbereich des Instituts unterstützt die Durchführung der wissenschaftlichen Programme, indem die Gastforscher im Gästehaus des Instituts Unterkunft und Verpflegung erhalten. Das Gästehaus wurde mit Mitteln der VolkswagenStiftung erbaut und 1967 eingeweiht. Die Wissenschaftler sind überwiegend in Einzelzimmern untergebracht, jedoch gibt es auch 8 größere Appartements sowie 5 Bungalows. Dadurch sind auch längere Aufenthalte im Rahmen der Programme Oberwolfach Research Fellows und Oberwolfach Leibniz Fellows möglich. Der Hauswirtschaftsbereich umfasst insgesamt 13,5 Stellen für Küche und Zimmerservice sowie für die Pflege von Gebäuden und Grundstück (davon waren 2025 lediglich 11,07 Stellen besetzt).

4.6. Finanzielle Übersicht

Erlöse 2025 (gerundet auf 1.000 €)	Revenues 2025 (rounded to 1,000 €)	
Zuwendung Bund/Länder	Benefits from the federation/federal states	3.620.000
Selbstbewirtschaftungsmittel aus 2024	Benefits from 2024	392.000
Drittmittel	Third party funds	131.000
Spenden	Donations	215.000
Sonstige Einnahmen	Other income	57.000
Zweckgebundene Reste aus 2024	Earmarked surpluses	178.000
Summe Erlöse	Total revenues	4.593.000

Aufwendungen 2025 (gerundet auf 1.000 €)	Expenses 2025 (rounded to 1,000 €)	
Personalausgaben	Personnel department	2.121.000
Materialaufwand	Purchases	397.000
Aufwand für bezogene Leistungen	Expenses for drawn benefits	119.000
Sonstige Aufwendungen (inklusive Sachausgaben Bibliothek)	Other expenses (with material expenses for the library)	1.143.000
Rückstellungen für zweckgebundene Reste	Provisions for earmarked surpluses	120.000
Investitionen	Investments	693.000
Summe Aufwendungen	Total expenses	4.593.000

The administration encompasses at the moment 10.87 positions, covering scientific administration (planning and organisation of the scientific program, public relation, third-party projects), library, IT-services and general administration (financial management, purchasing, personnel administration, contracts, renovation measures etc.) as well as guest services.

Since board and lodging is provided by the Institute, housekeeping is also an important part of the realisation of the scientific program at the MFO. The guest house was built with funds from the Volkswagen Foundation and inaugurated in 1967. Accommodation of the scientists is mainly provided in single rooms. In addition to that, 8 apartments and 5 bungalows enable a longer stay at the MFO within the programs Oberwolfach Research Fellows and Oberwolfach Leibniz Fellows. The housekeeping department comprises 13,5 positions for kitchen and room service as well as for the maintenance of the buildings and premises (only 11,07 positions staffed in 2025).

4.6. Financial overview

Erläuterungen

Der Anteil von Drittmitteln, Spenden und sonstigen Einnahmen bezogen auf die Gesamtsumme der Erlöse liegt im Haushaltsjahr 2024 bei 8,8%. Die zweckgebundenen Reste und Selbstbewirtschaftungsmittel aus 2024 sind dabei nicht berücksichtigt.

Öffentliche Mittel

Das MFO erhielt im Haushaltsjahr 2025 insgesamt 3,62 Mio. Euro Zuwendung von Bund und Ländern.

Drittmittel

Die projektbezogenen Drittmittel rekrutierten sich im Haushaltsjahr 2025 insbesondere aus Mitteln der National Science Foundation (NSF) der USA, der Simons Foundation, der Carl Friedrich von Siemens Stiftung und aus der Beteiligung am MaRDI Projekt (Mathematical Research Data Initiative).

Förderverein und Oberwolfach Stiftung

Zweckgebundene Spenden erhielt das MFO auch im Haushaltsjahr 2025 vom Förderverein, der Oberwolfach Stiftung und der Carl Friedrich von Siemens Stiftung. Die Gelder wurden für Reisekostenzuschüsse in besonderen Fällen, für die Unterstützung von Kinderbetreuungskosten, die Beschaffung von Büchern in der Bibliothek und als Zuschuss zu Baumaßnahmen verwendet. Die Oberwolfach Stiftung unterstützte das Institut 2025 mit zusätzlichen Mitteln für den Anbau des Speisesaals und den Einbau des Fahrstuhls im Gästehaus. Außerdem erhielt das Institut eine Spende der Gesellschaft für Mathematische Forschung e.V. als Unterstützung für den Einbau des Fahrstuhls im Gästehaus.

4.7. Dank

Ein besonders herzliches Dankeschön gilt den Zuwendungsgebern (Bund und Länder). Weiter gilt unser Dank allen Drittmittelgebern wie der Carl Friedrich von Siemens Stiftung, der National Science Foundation (NSF) und der Simons Foundation. Ein besonderes Dankeschön gilt natürlich auch dem Förderverein und der Oberwolfach Stiftung für die großzügige Unterstützung des MFO.

Explanations

The third party funds were attributed to the fiscal year they were assigned to. The proportion of private resources (own income, third-party-funds and donations) of the total sum of revenues is 8,8%. Funds carried forward from 2024 are disregarded here.

Public funding

In the fiscal year 2025 the MFO received 3.62 million Euro funding from the federation and the federal states.

Third-party funds

Earmarked third party funds in the fiscal year 2025 are mainly composed of the grants from the US National Science Foundation (NSF), the Simons Foundation, the Carl Friedrich von Siemens Foundation and from the participation in the Mathematical Research Data Initiative (MaRDI).

Förderverein and Oberwolfach Foundation

Earmarked donations have been received by the Förderverein, the Oberwolfach Foundation, and the Carl Friedrich von Siemens Foundation. These funds have been used to support travel costs for scientists in special cases, for child support, for special literature, and as additional support for building measures. The Oberwolfach Foundation provided the Institute with additional funding for the expansion of the dining hall and the installation of a passenger elevator in the guest house. The Institute also received a donation from the Gesellschaft für Mathematische Forschung e.V. to support the installation of the passenger elevator in the guest house.

4.7. Acknowledgement

A particular thank-you goes to the federation and the federal states for their financial support. We would also like to thank for the third-party funds received from the Carl Friedrich von Siemens Foundation, the National Science Foundation (NSF) and the Simons Foundation. Our special thank-you also goes to the Förderverein and the Oberwolfach Foundation for their important support of the MFO.

4.8. Organisationsstruktur

Das Mathematische Forschungsinstitut Oberwolfach (MFO) hat die Rechtsform einer gemeinnützigen GmbH. Die Organe der gGmbH sind die Gesellschafterversammlung, der Verwaltungsrat, der wissenschaftliche Beirat und die Geschäftsführung.

Gesellschafter

Alleiniger Gesellschafter des MFO ist die Gesellschaft für Mathematische Forschung e.V. (GMF), die durch ihren Vorstand vertreten wird. Die GMF hat ca. 100 Mitglieder, darunter die vier institutionellen Mitglieder DMV (Deutsche Mathematiker-Vereinigung), GAMM (Gesellschaft für angewandte Mathematik und Mechanik), EMS (European Mathematical Society) und Förderverein. Die GMF ist Eigentümer des Grundstücks und der Institutsgebäude des MFO.

4.8. Structure of the organization

The Mathematisches Forschungsinstitut Oberwolfach (MFO) has the legal form of a non-profit corporation (gGmbH). The organs of the gGmbH are the Shareholders' Meeting, the Administrative Council, the Scientific Advisory Board, and the management.

Shareholder

The sole associate of the MFO is the Gesellschaft für Mathematische Forschung e.V. (Society for Mathematical Research, GMF), represented by its board. The GMF consists of about 100 members, including four institutional members: DMV (Deutsche Mathematiker-Vereinigung), GAMM (Gesellschaft für angewandte Mathematik und Mechanik), EMS (European Mathematical Society) and the Förderverein. The GMF is the legal owner of the site and of the buildings of the MFO.

Vorstand der GMF / Head of the GMF 2025

Prof. Dr. Rupert Klein, Berlin (Vorstandsvorsitzender/Chair)

Prof. Dr. Martin Hairer, Lausanne (Vorsitzender der wiss. Kommission/Chair of Scientific Committee)

Prof. Dr. Daniel Huybrechts, Bonn (Schatzmeister/Treasurer)

Verwaltungsrat

Der Verwaltungsrat entscheidet als wichtigstes Aufsichtsgremium des Instituts u.a. über die mittel- und langfristige Finanzplanung. Als Mitglied der Leibniz-Gemeinschaft wird das MFO von der Bundesrepublik Deutschland und den Bundesländern im Rahmen der Forschungsförderung nach Artikel 91b GG gemeinschaftlich finanziert, wobei das Sitzland Baden-Württemberg eine besondere Rolle einnimmt. Die Zuwendungsgeber sind im Verwaltungsrat vertreten. Den Vorsitz und stellvertretenden Vorsitz übernehmen jeweils ein Vertreter des Ministeriums für Wissenschaft, Forschung und Kunst des Landes Baden-Württemberg (MWK) sowie ein Vertreter des Bundesministeriums für Forschung, Technologie und Raumfahrt (BMFTR).

Administrative Council

The Administrative Council is the most important supervisory panel and decides on the medium- and long-term finance- and budgetplanning. As the MFO is a member of the Leibniz Association the financing of the Institute is shared by the Federal Republic of Germany and the federal states according to article 91b of the Basic Law of the Federal Republic of Germany with emphasis on the local state of Baden-Württemberg. The financial partners are represented in the Administrative Council of the MFO. The Chair and vice chair are held by representatives of the Ministry of Science, Research and the Arts of the State of Baden-Württemberg (MWK) and the Federal Ministry of Research, Technology and Space (BMFTR).

Mitglieder des Verwaltungsrats / Members of the Administrative Council 2025

Dr. André Schmandke, MWK Baden-Württemberg (Vorsitzender/Chair)

Dr. Jonas Frister, BMFTR (stellvertretender Vorsitzender/Vice Chair)

Dr. Franz Dettenwanger, VolkswagenStiftung, Hannover

Prof. Dr. Martin Hairer, EPFL Lausanne

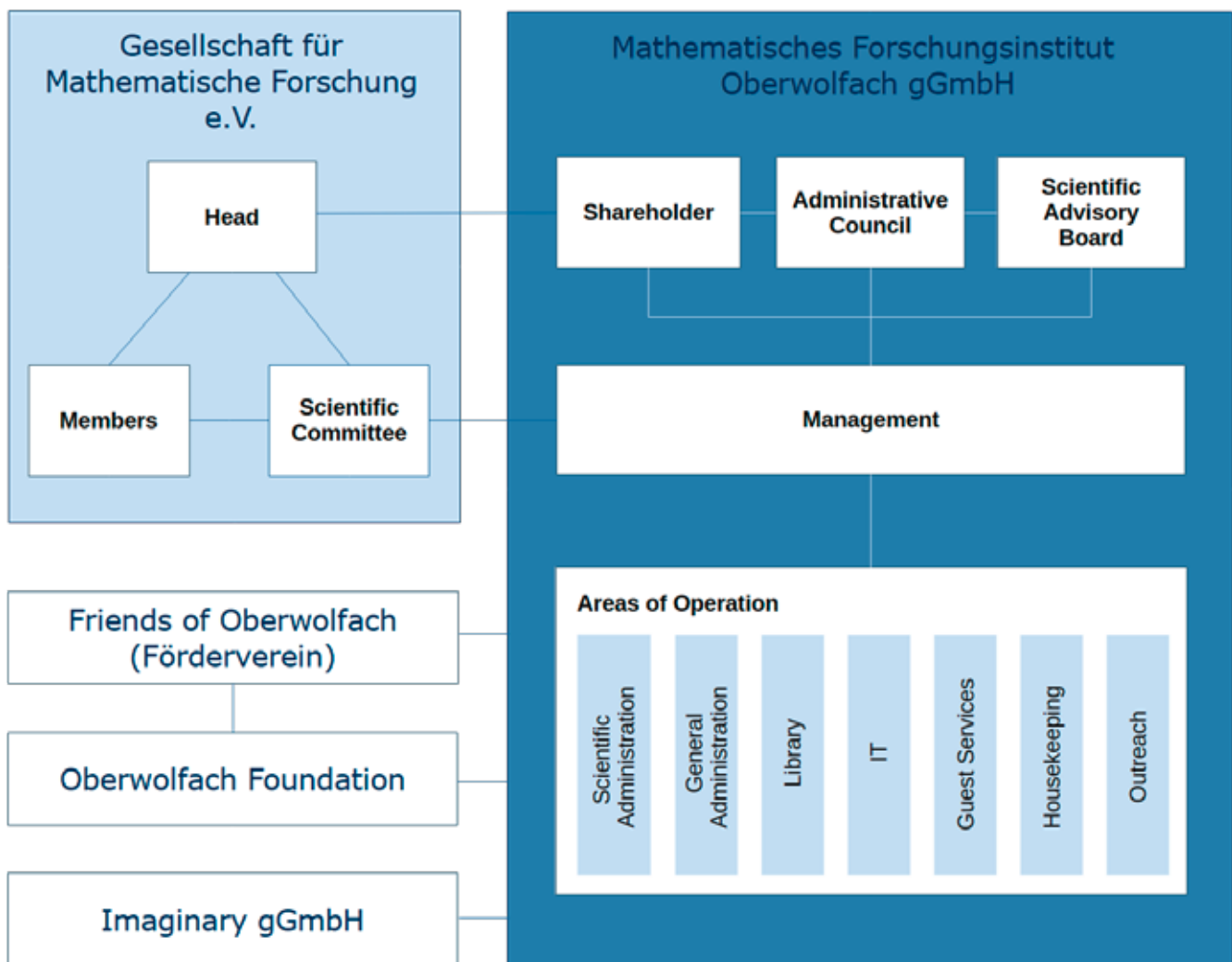
Prof. Dr. Rupert Klein, Freie Universität Berlin

Prof. Dr. Rafael Lang, Geschäftsführer der Klaus Tschira Stiftung gGmbH, Heidelberg

Christian Mees, Ministerium für Wirtschaft, Innovation, Digitales und Energie des Saarlandes

Isabel Pfeiffer-Poensgen, Carl Friedrich von Siemens Stiftung

Prof. Dr. Thomas Schick, Universität Göttingen



Übersicht über die Organisationsstruktur / Overview on the structure of the organization

Wissenschaftlicher Beirat

Der wissenschaftliche Beirat (SAB) bewertet in regelmäßigen Abständen die wissenschaftliche Arbeit des MFO und berät den Verwaltungsrat und die Geschäftsführung. Dem Beirat gehören 6–8 international angesehene Mathematikerinnen und Mathematiker an.

Scientific Advisory Board

The Scientific Advisory Board (SAB) regularly evaluates the scientific work of the MFO and gives advice to the Administrative Council and the management. The Advisory Board consists of 6–8 internationally renowned mathematicians.

Mitglieder des SAB / Members of the SAB 2025

Prof. Dr. Luigi Ambrosio, Pisa
Prof. Dr. Irit Dinur, Rehovot
Prof. Dr. Maria Esteban, Paris
Prof. Dr. Barbara Fantechi, Trieste
Prof. Dr. Marlis Hochbruck, Karlsruhe
Prof. Dr. Annette Huber-Klawitter, Freiburg (vice chair)
Prof. Dr. Thomas Schick, Göttingen (chair)
Prof. Dr. Christoph Thiele, Bonn

Wissenschaftliche Kommission der GMF

Die wissenschaftliche Kommission der GMF besteht aus ca. 20–25 international angesehenen Mathematikerinnen und Mathematikern und ist in Abstimmung mit der Geschäftsführung des MFO zuständig für die Forschungs- und Entwicklungsplanung sowie die aktuelle wissenschaftliche Arbeitsplanung des Instituts.

Scientific Committee of the GMF

The Scientific Committee of the GMF is composed of about 20 to 25 internationally renowned mathematicians and is responsible for the research and development planning, as well as for running decisions on scientific proposals, in agreement with the management of the MFO.

Wissenschaftliche Kommission der GMF / Scientific Committee of the GMF 2025

Prof. Dr. Karen Aardal, Delft
Prof. Dr. Arthur Bartels, Münster
Prof. Dr. Jean-Benoit Bost, Orsay
Prof. Dr. Sébastien Boucksom, Paris
Prof. Dr. Annalisa Buffa, Lausanne
Prof. Dr. Eric Cancès, Paris
Prof. Dr. Hugo Duminil-Copin, Genève/Bures-sur-Yvette
Prof. Dr. Alessio Figalli, Zürich
Prof. Dr. Colin Guillarmou, Orsay
Prof. Dr. Martin Hairer, Lausanne (chair)
Prof. Dr. Daniel Huybrechts, Bonn
Prof. Dr. Özlem Imamoglu, Zürich
Prof. Dr. Bernhard Keller, Paris
Prof. Dr. Ulrich Kohlenbach, Darmstadt
Prof. Dr. Gitta Kutyniok, München
Prof. Dr. Klaus-Robert Müller, Berlin
Prof. Dr. Markus Reineke, Bochum
Prof. Dr. Eero Saksman, Helsinki
Prof. Dr. Lisa Sauermann, Bonn
Prof. Dr. Karl-Theodor Sturm, Bonn
Prof. Dr. Andreas Thom, Dresden (vice chair)
Prof. Dr. Corinna Ulcigrai, Zürich
Prof. Dr. Sara van de Geer, Zürich
Prof. Dr. Eva Viehmann, Münster
Prof. Dr. Anna Wienhard, Leipzig

Geschäftsführung

Der Direktor leitet das Institut und führt dessen laufende Geschäfte. Er wird in seiner Arbeit vom stellvertretenden Direktor unterstützt. Die Geschäftsführung ist insbesondere verantwortlich für die laufende wissenschaftliche Arbeitsplanung, in Abstimmung mit der wissenschaftlichen Kommission der GMF.

Management

The Director manages the Institute and conducts its day-to-day business. He is supported in his work by the Vice Director. The management is responsible in particular for ongoing scientific work planning, in consultation with the GMF's Scientific Committee.

Belegschaft

Die Belegschaft des MFO gliedert sich in die Bereiche wissenschaftliche Verwaltung, allgemeine Verwaltung, Bibliothek, IT, Öffentlichkeitsarbeit, sowie Gästebetreuung und Hauswirtschaft.

Staff

The staff of the MFO subdivides into the areas scientific administration, general administration, library, IT, outreach and media, guest services and housekeeping.

Geschäftsführung und Belegschaft / Management and Staff 2025		
Prof. Dr. Gerhard Huiskens	Direktor	Director
Prof. Dr. Matthias Hieber	Stellv. Direktor	Vice Director
apl. Prof. Dr. Stephan Klaus	Wiss. Administrator	Scientific Administrator
Susanne Riester	Verwaltungsleiterin	Head of Administration
Dr. Tatjana Ruf	Wiss. Mitarbeiterin	Scientific Assistant
Andrea Klaußner	Sekretärin für das wissenschaftliche Programm	Scientific program secretary
Silke Okon	Sekretärin für das wissenschaftliche Programm	Scientific program secretary
Verena Franke	Bibliothekarin	Librarian
Jennifer Hinneburg	Mitarbeiterin Bibliothek	Library Assistant
Gisela Lehmann (<i>bis 10/2025</i>)	Mitarbeiterin Bibliothek	Library Assistant
Barbara Staniec (<i>ab 11/2025</i>)	Mitarbeiterin Bibliothek	Library Assistant
Alex Györek	IT	IT
Christoph Hinneburg	IT	IT
Helmut Kastenholz	IT	IT
Stefanie Reith	Gästebüro	Guest office/reception
Marlene Ruf	Gästebüro	Guest office/reception
Katrin Schmid	Gästebüro	Guest office/reception
Charlotte Endres	Hauswirtschaftsleiterin	Housekeeping Manager
Anton Hermann	Hausmeister	Caretaker
ca. 9 full time equivalents	Weitere Beschäftigte	Further housekeeping staff

Beteiligung an Imaginary

IMAGINARY begann im Jahr 2008 anlässlich des Wissenschaftsjahres der Mathematik als Projekt der Öffentlichkeitsarbeit des MFO. 2016 wurde eine eigenständige gemeinnützige GmbH ausgegründet, die heute als vielseitiger Dienstleister im Bereich der Mathematik-Kommunikation tätig ist. Das MFO ist ein Gesellschafter der IMAGINARY gGmbH und kooperiert mit dieser im Bereich der Öffentlichkeitsarbeit.

Shareholding in Imaginary

IMAGINARY started in 2008 as a public relations project of the MFO on the occasion of the Year of Mathematics. In 2016, an independent non-profit company was spun off, which today operates as a versatile service provider in the field of mathematics communication. The MFO is a shareholder of IMAGINARY gGmbH and cooperates with it in the field of public relations.

Förderverein und Oberwolfach Stiftung

Der Verein zur Förderung des Mathematischen Forschungsinstituts Oberwolfach e.V. (Förderverein, Friends of Oberwolfach) wurde 1992 von Mathematikern als eigenständige Organisation gegründet, mit dem Ziel das Institut zusätzlich finanziell zu unterstützen. Dazu leisten die Vereinsmitglieder Mitgliedsbeiträge. Die Oberwolfach Stiftung, die im Förderverein als nicht rechtsfähige Stiftung gegründet wurde, sammelt Stiftungskapital aus dem wirtschaftlichen und dem privaten Bereich.

Friends of Oberwolfach and Oberwolfach Foundation

The Verein zur Förderung des Mathematischen Forschungsinstituts Oberwolfach e.V. (Förderverein, Friends of Oberwolfach) was founded in 1992 by mathematicians as an independent organization with the aim of providing additional financial support to the Institute. To this end, the association members pay membership fees. The Oberwolfach Foundation, a foundation of public utility within the Förderverein provides further financial support by economic and private means.

