Berlin Mathematics Research Center

MATH+

41st Newsletter – October/November 2026

Welcome from the Chairs

Dear MATH+ Community,

The winter semester 2026/2027 is underway. Several outreach events have already taken place, but the highlight is still to come: **17-19 November, when we celebrate the 20th anniversary of the Berlin Mathematical School (BMS) and the successful proposal for a second funding period**. The program includes MATH+ Day and the General Assembly. Check the website for registration!

During **BMS Orientation Week** in late September, we welcomed 38 new students and introduced them to academic life and the vibrant city of Berlin. The **call for applications for the BMS PhD program starting in fall 2027** is now open. As the original BMS website is unavailable due to recently discovered PHP vulnarabilities, application information is available on a temporary website.

The **MATH+ office has finally moved into its new home in TU Berlin's IMoS building**.

Our students have enjoyed several successful events: the ***BMS–BGSMath Junior Meeting*** **in Barcelona** in September, the August **workshop on *Future Research in Combinatorial Optimization*** for PhD candidates, and TU Berlin students' participation in an **international mathematics competition in Czechia**.

A new short **MATH+ video introduces OSCAR** (Open Source Computer Algebra Research System), featuring Michael Joswig, one of the developers, and PhD student Zoe Geiselmann, who uses OSCAR in her research.

In our People section, we welcome **three new BMS Dirichlet Postdocs**—Hefin Lambley, Eliseo Luongo, and Pardis Semnani—introduce the **2026 Hanna Neumann Fellows** Hana Dal Poz Kouřimská and Luisa Plato, and congratulate our recent BMS graduates.

Read about the "**Mathenacht aus Berlin, Bonn und Münster**," organized by the three German mathematical Clusters of Excellence, and the **MATHINSIDE lecture "Everything Optimal?"**.

And winter is coming, bringing Christmas and our **2026 MATH+ Advent Calendar!** We welcome your contributions: Please submit your challenges to the School Activities team by 10 November.

As always, we encourage you to **share your research results, publications, awards, and news** about visiting scholars with Beate Rogler at rogler@mathplus.de.

We wish you a wonderful semester and look forward to seeing you at our anniversary celebration!





Sebastian Pokutta Claudia Schillings Andrea Walther

MATH+ News

BMS20 & Kick Off of the Second MATH+ Funding Period

The Berlin Mathematical School (BMS) turns 20 in November! We will celebrate this anniversary and kick off the second MATH+ funding period from 17 to 19 November 2026.

- **Tuesday, 17 November: MATH+ Day**

  09:00–10:30 MATH+ General Assembly with the election of the MATH+ Chairs
  10:30–12:30 Poster Session with the Scientific Advisory Board
  17:30 Anniversary Celebration, Reception, and Party

- **Wednesday, 18 November & Thursday, 19 November:**
  Mathematical conference celebrating the successes of BMS and MATH+: Outstanding mathematicians with connections to Berlin will deliver keynote lectures, while our BMS alumni will showcase the breadth of the research conducted at BMS and MATH+.

  Registration is now open! Program details are available online here.

Calls for Applications: BMS PhD Program and BMS Dirichlet Postdoc Fellowship Program

The **Berlin Mathematical School (BMS)** is currently accepting applications for admission to its **PhD program, starting in 2027.** Please encourage interested students to apply and help spread the word about this call for applications. You can find more information about the application procedure on the temporary BMS website as the original website (math-berlin.de) is currently offline due to recently discovered PHP vulnerabilities.
Deadline is 1 December 2026.

MATH+ and the BMS also invite **applications for the Dirichlet Postdoc Fellowship,** starting in fall 2027. This two-year position is open to promising early-career mathematicians. Further details can be found in the BMS Postdoc Application Guidelines.
Deadline is 15 November 2026.

BMS–BGSMath Junior Meeting 2026 in Barcelona, 2-4 September 2026



Since 2016, when the two graduate schools signed a memorandum of understanding (MoU), the Berlin Mathematical School (BMS) and the Barcelona Graduate School of Mathematics (BGSMath) have organized joint Junior Meetings every two years, alternating between Berlin and Barcelona.

The meetings aim to **strengthen the schools' doctoral and postdoctoral programs** and foster exchange between their mathematical communities. This year, the fifth *BMS–BGSMath Junior Meeting* took place in Barcelona from 2-4 September 2026. The Berlin delegation received a warm welcome from their hosts in Barcelona. A total of 44 participants from Berlin attended the meeting in Barcelona, which brought together 75 participants overall.

Read more

Workshop on Future Research in Combinatorial Optimization



The *29th Workshop on "Future Research in Combinatorial Optimization" (FRICO)* took place from 10 to 14 August 2026 at TU Berlin in Germany. FRICO offers PhD candidates in discrete and combinatorial optimization an excellent opportunity to exchange ideas, present their research, and discuss recent advances in the field. It also helps early-career researchers explore optimization-related career paths and connect with industry partners.

This year's edition of the workshop, organized by doctoral students Srinwanti Debgupta, Ekin Ergen, and Paul Lippke (TU Berlin), took place at the new Interdisciplinary Center for Modeling and Simulation (IMoS). The workshop brought together 45 participants from several countries, including Germany, Austria, the Netherlands, and Hungary.

The program combined participant-led research talks with collaboration sessions and an industry session in which sponsoring companies provided attendees with insights into career opportunities outside of academia. Alongside the technical sessions, the program featured a range of social activities, including a conference dinner, a tour of the Bundestag, a pub quiz, and a board game night.

Successful Participation by TU Berlin Students in an International Mathematics Competition



On 22 April 2026, the 33rd edition of the *Vojtěch Jarník International Mathematics Competition* took place in Ostrava, Czechia. The competition was a highlight for undergraduates who enjoy solving mathematical problems and provided an excellent opportunity to meet peers who share a passion for mathematics.

We are delighted to report that TU Berlin was successfully represented in this year's competition, with support from MATH+. **A total of eight TU Berlin students participated—the highest number to date.** Fedir Fedorov was a co-winner in the younger undergraduate category. Four other students—Laurin Geyer, Johann Fried, Karolina Schnitter and Jonathan Maeß—each received an honorable mention. Congratulations to all of them!

Following a rewarding experience in Ostrava, the students are eagerly looking forward to future competitions. If you would like to support them, particularly by accompanying them to a competition or proposing an original problem for a future competition, please **feel free to contact their current team leader, Ekin Ergen at ergen@math.tu-berlin.de**.

Discover OSCAR: An Open Source Computer Algebra Research System



OSCAR is a free, open-source computer algebra research system written in Julia. It brings together computational tools for areas such as commutative algebra, number theory, group and representation theory, and algebraic, tropical and polyhedral geometry in one integrated system.

The new PeerTube video channel for OSCAR features interviews with developers as well as resources for learning how to apply OSCAR in mathematics, presented by the "real Oscar."

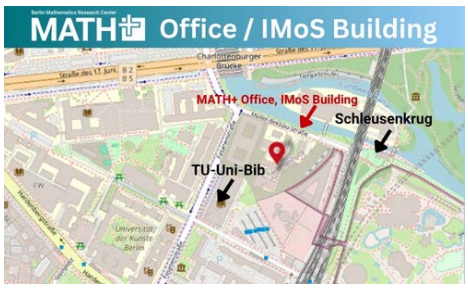
In MATH+, OSCAR plays a key role in the Emerging Fields projects EF-LI-Opt-1: *Neural Generative Models for Algebraic Curves*, EF-LI-Opt-5: *Hard Linear Programs*, and the Method Development Unit MDU-4: *Efficient Multi-Parameter Persistent Homology*.

MATH+ Distinguished Fellow Michael Joswig (TU Berlin) is one of the developers of OSCAR. Zoe Geiselmann (TU Berlin), a BMS PhD student in a MATH+ Emerging Fields Research Project, uses OSCAR in her research. In our MATH+ video, they explain what OSCAR is, which areas of mathematics it supports, and how it benefits researchers. They also highlight opportunities to learn how to use OSCAR, including the *2027 OSCAR Summer School* in Berlin.

Watch the video featuring Michael Joswig and Zoe Geiselmann on the MATH+ YouTube channel. and on the MATH+ Instagram channel.

Read more

+ MATH+ Office Moved into Its New Permanent Home at the IMoS Building in June 2026



Following the devastating water damage at TU Berlin's *Institute of Mathematics* in June 2023, the MATH+ Office had to leave the building and was warmly welcomed at various locations across TU Berlin over the following years. Many thanks to all our hosts for their wonderful hospitality!

After moving four times between temporary locations, we were thrilled to finally find a permanent home in the IMoS building in June 2026. And with the popular "Schleusenkrug" beer garden around the corner, the new location certainly has its perks!

We warmly invite you to stop by and visit us in our new offices! Our address is:

Technische Universität Berlin
Exzellenzcluster MATH+, IMoS Building, 5th floor
Müller-Breslau-Straße 8–10
10623 Berlin

Read more about the IMoS building

MATH+ People

+ Three New MATH+/BMS Dirichlet Postdocs in Berlin



We warmly welcome Hefin Lambley, Eliseo Luongo, and Pardis Semnani as new Dirichlet Postdocs to the MATH+ and BMS communities and wish them all the best during their two-year research appointments.

Hefin will be working in Claudia Schillings's research group, *Numerical Mathematics of Deterministic and Stochastic Partial Differential Equations* at Freie Universität Berlin. Eliseo will join Benjamin Gess's group *Stochastic*

Analysis in the Sciences at Technische Universität Berlin, and Pardis will be hosted by Carlos Améndola in the *Algebraic and Geometric Methods in Data Analysis* group, also at TU Berlin.

As Dirichlet Postdoctoral Fellows, they will have the freedom to pursue their own research interests while benefiting from Berlin's vibrant mathematical research community, where they can engage with the latest developments in their respective fields. They will receive support in building national and international research networks and exchanging ideas with researchers from related and complementary fields. In addition, the fellows will have numerous opportunities to develop their teaching, supervision, and mentoring skills within the framework of MATH+ and the BMS.

Read more about the Dirichlet Fellows and their research

+ MATH+ Interview with the 2026 Hanna Neumann Fellows Hana Dal Poz Kouřimská and Luisa Plato



Each year, MATH+ awards two to three Hanna Neumann Fellowships to outstanding female postdoctoral researchers.

Alongside **Caroline Namanya** (Makerere University, Uganda), hosted by Dominic Bunnett at TU Berlin, two MATH+ members received the fellowships: **Hana Dal Poz Kouřimská** (Universität Potsdam) and **Luisa Plato** (WIAS). The fellowships will support research stays and collaborations in France for Hana and the UK and the U.S. for Luisa. Hana's research combines differential, discrete, and computational geometry, while Luisa focuses on the analysis, numerical simulation, and optimal control of partial differential equations, connecting mathematical theory with applications in complex fluids, cross-diffusion systems, and population dynamics.

In our interview, the fellows discuss their paths into mathematics, their upcoming research stays, the challenges women face in academia, and their ambitions for future research and collaboration.

Read more

+ The Following BMS Students Have Successfully Completed Their Doctorates

Tom Baumbach (TU Berlin)
"On cone-volumes and affine adjoints"

Celvic Coomber (TU Berlin)
"Math powered drug design: Rethinking opioid pharmacology from an endogenous opioid perspective"

Lasse Ermoneit (TU Berlin)
"Modeling and Simulation of Si/SiGe Qubits: Disorder, Dynamics and Optimization Christian Lothar"

Christian Lothar Kuchler (HU Berlin)
"Optimal Control of Hybrid Parabolic PDEs with Implicit Switching"

Raphael Kuess (HU Berlin)
"Temperature-Dependent Inverse Problems in Piezoelectricity: Modeling, Analysis, Regularization and Structure-Exploiting Optimization"

Wei Huang (FU Berlin)
"Topics in Partial Differential Equations: Scaling Limits, Homogenization, and Inverse Problems"

Congratulations!

MATH+ Events

Review:

BMS Orientation Week in Berlin, 30 September – 7 October 2026



A total of **18 Phase I and 20 Phase II students** participated in the BMS Orientation Week, held from 30 September to 7 October, 2026.

The program provided a warm welcome to the new BMS students and helped them get acquainted with Berlin, the three Berlin universities, and each other.

Orientation Week began with the **Orientation Day on 30 September**, which introduced the students to the structure of the BMS program, its regulations, the mentoring program, and research data management, as well as the support network within the MATH+ and BMS community.

The following day, a **Berlin walking tour** gave the students the opportunity to explore the city together. From 2 to 7 October, the participants took part in **intercultural training and campus tours** to familiarize themselves with the university facilities. The program also included an **academic component, featuring presentations** on MATH+ research projects and an introduction to the BMS core course.

Preview:

MATH+ Events

- **6 November:** **Science Slam** of the Berlin Clusters of Excellence at Roadrunner's Club
- **17 November:** **MATH+ Day** (as part of the celebration event)
- **17–19 November:** BMS20 Celebration and Kick-Off of the Second Funding Period

MATH+ Fridays (Save the Dates for Winter Semester 2026/27)

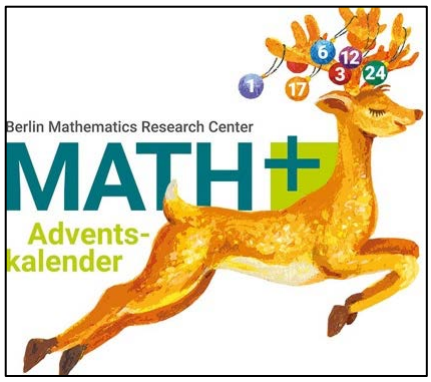
Since the original BMS website (math-berlin.de) is currently not online because of the PHP vulnerabilities, visit the **temporary BMS website** for more information:

- 06 November: Silvia De Toffoli (IUSS Pavia)
- 27 November: Mario Kummer (TU Dresden)
- 11 December: Stefanie Petermichl (Würzburg)
- 08 January: Bernhard Schmitzer (Göttingen)
- 22 January: László Végh (Bonn)
- 5 February: tba

All events are expected to take place **at TU Berlin (IMoS Building, Room 0005).**

MATH+ Outreach

Call for Puzzle Submissions for the MATH+ Advent Calendar



The 2026 MATH+ Advent Calendar is now open for puzzle submissions! We warmly invite all MATH+ members to contribute a mathematical challenge. The **submission deadline is 10 November 2026**.

Please encourage your group members and students to participate by submitting a mathematical puzzle suitable for students in the 10th grade and above. For inspiration, take a look at previous challenges on the MATH+ Advent Calendar website.

If you have any questions or need assistance regarding the MATH+ Advent Calendar, please contact our School Activities team, Estela Gretenkord and Lukas Protz, at schools@mathplus.de. Puzzle submissions can also be sent to schools@mathplus.de. Many thanks to everyone who helps make this year's Advent Calendar a success!

Read more on the MATH+ Advent Calendar website

"Mathenacht aus Berlin, Bonn und Münster" – Hosted by Three Mathematical Clusters of Excellence



The fifth joint Mathenacht, organized by the mathematical Clusters of Excellence in **Berlin (MATH+), Bonn (Hausdorff Center for Mathematics), and Münster (Mathematics Münster)**, took place online via Zoom on 9 October. Held in German, the program featured afternoon **workshops for school students** (3-6 p.m.), a **math quiz** (6-7 p.m.), a well-attended **panel discussion** on *AI and the Future of Mathematics* (7-8 p.m.), and **three research lectures** (8-11 p.m.).

Representing MATH+, **Demian Goos** led an eighth-grade workshop featuring a mathematical history mystery. **Christoph Spiegel (ZIB)** joined Peter Scholze (MPIM Bonn) and Thomas Nikolaus (Universität Münster) for the panel discussion on *AI and the Future of Mathematics*, which attracted more than 300 participants. **Elena Mäder-Baumdicker (FU Berlin)** gave a lecture on *Optimal Shapes in Nature and Geometry*. **Many thanks to everyone involved!**

The detailed program is available here.

MATHINSIDE Lectures at TU Berlin's IMoS Building on 16 October



Around 90 students from Käthe-Kollwitz-Gymnasium, Archenhold-Gymnasium, and Herder-Gymnasium attended the MATHINSIDE lectures at **TU Berlin's IMoS building** on 16 October 2026. Under the theme "Everything Optimal?," **René Henrion (WIAS)** and **Elena Mäder-Baumdicker (FU Berlin)** explored how mathematics helps address uncertainty in optimization and explains shapes found in nature and

geometry. During an interactive puzzle session, students collaborated to tackle optimization challenges from previous MATH+ Advent Calendars.

MATHINSIDE introduces high school students to the diverse applications of mathematics and inspires interest in mathematical research. Many thanks to our speakers for supporting MATH+ outreach!

Read more

+ Announcement: “Science Slam” at Berlin Science Week on 6 November



Clear the stage for science! The “Science Slam” of the Berlin Clusters of Excellence returns as part of Berlin Science Week.

Come support our MATH+ representative **Demian Goos** on **6 November at 7:30 p.m.** (doors open at 7 p.m.) at Roadrunner’s Paradise Club (Prenzlauer Berg). In an entertaining six-minute presentation in English, he will turn his research on Georg Cantor and mysterious letters into a detective story.

Ten science slammers, including PhD students and postdocs from **seven Berlin Clusters of Excellence**, will present their research in an engaging way to a general audience.

Read more