Berlin Mathematics Research Center

MATH+

39th Newsletter – April 2026

Welcome from the Chairs

Dear MATH+ Community,

We hope you had a relaxing winter break and we look forward to seeing you at the many upcoming events. Most importantly, the BMS turns 20 in November! We will celebrate this anniversary and mark the start of the second MATH+ funding period from 17 to 19 November—please save the date!

We are delighted to share that we have received **58 proposals for our Call for Projects 2026**. The preselected projects will be presented at the Cluster Days on 18 and 19 June at Urania Berlin.

We are also pleased to announce that **MATH+ signed a Memorandum of Understanding (MoU) with École Polytechnique (l'X, Paris)** in March to strengthen scientific collaboration.

In this issue of the newsletter, you will find **two exciting publications involving MATH+ members:** Max von Kleist (FU Berlin) on the containment of the Mpox epidemic in Berlin, and Alexander I. Bobenko (TU Berlin) on solving the Bonnet problem. In addition, the **2025 Hanna Neumann Fellows** share insights into their research, and in an interview with MATH+, the **2025 YAM Fellows** (Young African Mathematicians) talk about their academic journey from Africa to Berlin.

Meanwhile, the MATH+ Office welcomed **Alex Nompilakis as the new FU Liaison Officer** in February, supporting the BMS and MATH+. We also announced **two new job postings:** HU Liaison Officer at BMS/MATH+, and Junior Research Group Leader (JRGL) in Optimization at HU Berlin, both with deadlines at the beginning of May. Please help us to spread the word.

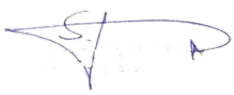
This year's **BMS Days and BMS Student Conference** took place from 16–20 February, followed by **the BMS Orientation** on 13 April. The **second round of BMS applications** received 153 submissions.

We would also like to draw your attention to two upcoming highlights: a special talk on **the work of Abel Prize laureate Gerd Faltings,** given by DMV President Jürg Kramer (a report will follow soon), at the "Berliner Tag der Mathematik" (FU Berlin), and a **conference at HU Berlin celebrating the 200th anniversary of Crelle's Journal and the birth of Riemann** (registration deadline July 1) .

In addition, several **outreach activities** are featured below, including the **Math Advent Calendar Award Ceremony** at FU Berlin in January and **MATHINSIDE** in March in celebration of Pi Day.

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

We wish you a successful summer semester and look forward to the upcoming MATH+ events!



Sebastian Pokutta

Claudia Schillings

Andrea Walther

MATH+ News

Save the Date! BMS20 and Mark the Start of the Second MATH+ Funding Period

The Berlin Mathematical School (BMS) turns 20 in November! We will celebrate this anniversary and kick off the 2nd MATH+ funding period from 17 to 19 November 2026.

Tuesday, 17 November: MATH+ Day

9:00	MATH+ General Assembly with elections
10:30-12:30	Poster Session with Scientific Advisory Board
17:00	Celebration with Reception and Party

Wednesday, 18 November and Thursday, 19 November:
Mathematical Conference celebrating BMS and MATH+ successes

Program details and registration will be **avaiable in June.**

MATH+ Call for Projects and Cluster Days

We are delighted to announce that we have received **58 proposals in response to our Call for Projects 2026**. All of these innovative research proposals will be reviewed over the coming weeks, and a pre-selection will be made. The **Cluster Days**, where the pre-selected projects will be presented, will take place **on 18–19 June at Urania Berlin**. We will publish a preliminary schedule as soon as possible.

Calls for Applications: BMS PhD Program – Second Round (Deadline: 1 April)

The Berlin Mathematical School (BMS) received 153 applications by the 1 April deadline for admission to its PhD program starting in 2026, which is almost double the number of applications the BMS received in this second round last year. Around 90% of applications came from outside of Germany, representing 50 different countries.

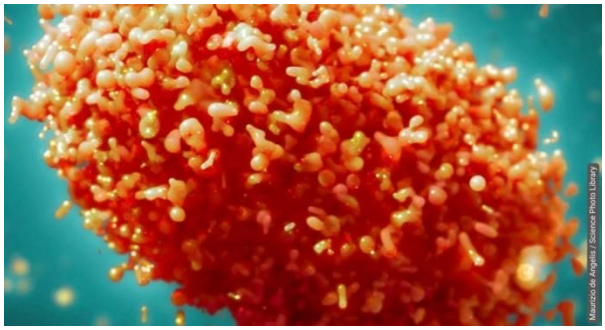
MATH+ and École Polytechnique (Paris) Sign MoU to Strengthen Scientific Collaboration

École Polytechnique welcomed a delegation from MATH+ on 24 March, including Sebastian Pokutta (TU Berlin, ZIB), Executive Chair of MATH+, and Michael Joswig (TU Berlin). The meeting aimed to lay the groundwork for an expanded partnership, marked by the signing of a framework agreement focused on academic and scientific collaboration within the partners' international strategies.

The new agreement will enable students and doctoral candidates from École Polytechnique to undertake internships and research stays at MATH+ partner institutions in Berlin—FU, HU, and TU Berlin, the Weierstrass Institute (WIAS), and the Zuse Institute Berlin (ZIB). In return, École Polytechnique will host students and researchers from MATH+.

Read more

MATH+ Scientists on the Containment of the Mpox Epidemic in Berlin

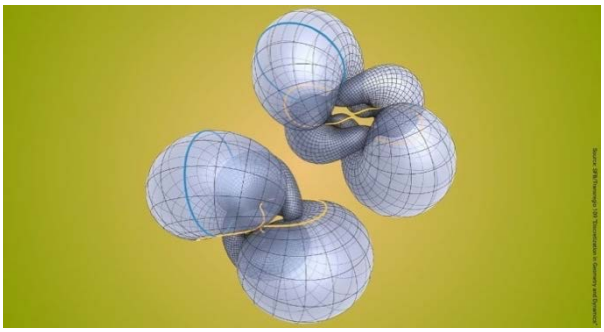


In 2022, major Mpox (monkeypox) outbreaks occurred in several countries, particularly among men who have sex with men (MSM). At its peak in Berlin, more than 200 new cases per week were reported, before numbers dropped rapidly over the summer.

Scientists from the Robert Koch Institute (RKI) and Freie Universität Berlin, including MATH+ members Nils Gubela (PhD student) and Max von Kleist (MATH+ Professor), used mathematical simulations to explore how sexual contact patterns, temporary behavioral changes, and immunity from infection or vaccination shaped the outbreak. The findings from a MATH+ Emerging Fields project were published in *Communications Medicine* in early 2026 and covered by the German newspaper *Tagesspiegel*.

Read more

MATH+ Member A. I. Bobenko (TU Berlin) and Colleagues Solve Decades-Old Geometry Problem



A long-standing principle in classical surface theory, dating back more than 150 years to Pierre Ossian Bonnet, states that the geometry of a compact surface is uniquely determined by its metric and mean curvature. Alexander I. Bobenko (TU Berlin), together with his colleagues from the Technical University of Munich (TUM) and North Carolina State University, have now shown that this is not always the case.

Discrete differential geometry—a modern mathematical discipline with important applications, developed in part within the Collaborative Research Centre SFB/TRR 109 "Discretization in Geometry and Dynamics"—played a crucial role in their research.

The researchers constructed two distinct donut-shaped surfaces (tori) that share the same metric and mean curvature but differ in their global geometry—an example that had eluded mathematicians for decades. While theoretical work had suggested that such pairs might exist for tori, no explicit construction had previously been found.

Read more

Jobs@MATH+ Administrative Officer (BMS) and Junior Research Group Leader (JRGL) at HU Berlin

1) **Administrative Officer (f/m/d) for the Berlin Mathematical School (BMS) at HU Berlin**

   We invite applications for the position of Administrative Officer at HU Berlin, supporting the Berlin Mathematical School (BMS) of MATH+. Join an international, friendly team in an academic environment with attractive working conditions.

   Deadline: 6 May 2026

2) **Junior Research Group Leader (JRGL) in Optimization at HU Berlin**

MATH+ is hiring a **Junior Research Group Leader (JRGL) in Optimization at HU Berlin**. We are seeking a candidate to establish and lead a research group developing and analyzing novel approaches to optimization, their implementation, and their use in application-oriented tasks. The position offers a unique opportunity to pursue research on interdisciplinary scientific issues within MATH+, spanning application-oriented research that encompasses mathematics as well as fields such as materials science, chemistry, or physics.

Deadline: 5 May 2026

Read more about both job postings

+ Conference "Two Centuries of Moduli!" at HU Berlin—Celebrating the 200th Anniversary of Crelle's Journal and the Birth of Riemann: September 7-11

On the occasion of the 200th anniversary of the founding of Crelle's Journal and the birth of Riemann, the conference "Two Centuries of Moduli" will take place from September 7-11, 2026. As Crelle's Journal has been closely linked to the University of Berlin and the Berlin Academy of Sciences and Humanities, the conference will be held at **Humboldt-Universität zu Berlin** and the **Berlin-Brandenburg Academy of Sciences and Humanities (BBAW)**. The event is organized by Gavril Farkas, Daniel Huybrechts, and Rahul Pandharipande.

All lectures will take place at HU Berlin. On September 10, a special day will be held in the Einstein Lecture Hall of the BBAW on the topic "From Crelle's Berlin to Modern Moduli", dedicated to the historical development of the concept of moduli and to the life and work of August Leopold Crelle.

Registration deadline via the event website is **July 1.**

Read more

MATH+ People

+ Second Interview with 2025 Hanna Neumann Fellows Following Their Berlin Research Stay


Following their research stay at MATH+ in Berlin, the 2025 Hanna Neumann Fellows **Monika (Indian Statistical Institute Kolkata)** and **Alice Marveggio (Hausdorff Center for Mathematics, Bonn)** share insights into their scientific work, collaborations, and experiences in a follow-up interview. During their fellowship, Monika collaborated with Marc Kegel, while Alice worked with Barbara Zwicknagl, both MATH+ members at HU Berlin.

Monika's research interests focus on low-dimensional topology, knot theory, and contact and symplectic geometry. She is currently working on several projects related to the classification of Legendrian knots and three-dimensional contact manifolds. **Alice's research** lies at the intersection of

partial differential equations and the calculus of variations, with a particular focus on interface evolution problems arising in continuum mechanics.

In the interview, both fellows discuss how the Berlin research environment shaped their work, highlight new collaborations and research directions that emerged during their stay, and reflect on how these experiences continue to influence their academic paths.

Read the full interview

+ Young African Mathematician Program: MATH+ Interview with the YAM Fellows 2025–2026

MATH+ is a partner in the Young African Mathematicians (YAM) Fellowship Program, which brings together five African Institutes for Mathematical Sciences (AIMS) in Cameroon, Senegal, Rwanda, Ghana, and South Africa, as well as four German Clusters of Excellence in mathematics located in Berlin, Bonn, Heidelberg, and Münster. The program provides fellowships to talented young African mathematicians at the master's level who seek research experience in their chosen field.

The current YAM Fellows 2025–2026 at MATH+, **Kessel Wilson Mbouche Nzali** (Host: Christian Bayer, TU Berlin/WIAS) and **Manuella Kristeva Nakam Yopdup** (Host: Sebastian Pokutta, TU Berlin/ZIB), share their academic journeys and impressions of Berlin in the interview with MATH+. They discuss research and differences in teaching cultures between Germany and Cameroon, life abroad in a new city and country, their ambitions to pursue a PhD, and their aspirations to make an impact in Africa in the future.

Read the interview and watch the YAM Fellows on the MATH+ Instagram channel

+ MATH+ Office Welcomes a New Colleague as FU Liaison Officer at the BMS/MATH+

Alex Nompilakis is the new **FU Liaison Officer at the BMS/MATH+.** He studied sociology at FU Berlin, focusing on quantitative methods and social inequalities.

Before joining MATH+, he worked in administration, science communication, and project coordination at the European Youth Parliament, HWR Berlin, and the Cluster of Excellence Science of Intelligence.

+ The Following BMS Students Have Successfully Completed Their Doctorates

Jonas J.E.W. Bresch (TU Berlin)
"Geometry-Aware Ansätze in Image Processing and Stochastic Calculations of Matrix Qu"

Carolina de Seixas Serra Domingos Barata (FU Berlin)
"Development of mathematical and computational models for simulating neuronal growth and wiring processes during brain development"

Marta Dai Pra (HU Berlin)
"Scaling limits for population models with varying size"

Wilhelmus Jacobus Maria van Oosterhout (HU Berlin)
"Analysis of Time-Dependent, Coupled Problems in Finite-Strain Visco-Elasticity"

Matei Sever Hanu (FU Berlin)
"Analysis of Numerical Methods for Ensemble Kalman Inversion and Filtering"

Rouyi Zhang (HU Berlin)
"Scaling Limits for Heavy-Tailed Hawkes processes and the Microstructure of Rough Volatility"

Congratulations!

MATH+ Events

Review:

+ BMS Days 2026 and BMS Student Conference (16–20 February)

On 16–17 February 2026, the BMS Days took place at the historic Langenbeck-Virchow-Haus. Open to 27 invited applicants and MATH+ members, the event provided an overview of the BMS program and current research across diverse mathematical fields of MATH+, along with opportunities for extended interviews between applicants and potential supervisors, informal discussions und personal exchange.

The program included **talks by researchers** from Berlin's universities: Sandra May (TU Berlin) on cut cell methods for complex flow problems, Salvatore Floccari (HU Berlin) on algebraic geometry and the Hodge conjecture, Tim Jahn (TU Berlin) on learning jump-diffusion dynamics, and Elena Mäder-Baumdicker (FU Berlin) on singularity analysis in geometric evolution equations. Further highlights featured **lectures** by Markus Reiß (HU Berlin) and Christian Haase (FU Berlin), a student round table, and a math quiz organized by the BMS Student Representatives.

Following the BMS Days, the **BMS Student Conference** took place from 18–20 February at TU Berlin. This year's speakers were Klaus Altmann (FU Berlin), Marie-Charlotte Brandenburg (Ruhr-Universität Bochum), and Benedikt Gräßle (University of Zurich). The conference also offered BMS students a platform to present their work, connect across disciplines, and engage with leading researchers.

Read more

+ BMS Phase II and Postdoc Orientation: 13 April 2026

The BMS Phase II and Postdoc Orientation, held at TU Berlin on April 13, introduced key aspects of the BMS program, including the doctoral supervision agreement, mentoring opportunities, soft-skills seminars, and available financial support. Participants also received an overview of research data management in a session led by Tim Hasler (Chief Data Officer, MATH+).

The day concluded with a guided walking tour through Berlin, offering participants an opportunity for informal exchange and networking.

Preview:

MATH+ Fridays in the Sumer Semester 2026

- **8 May 2026:** Susan Hermiller (U Nebraska): A tale of three unknotting conjectures @TU (MA001)
- **22 May 2026:** Jessica Fintzen (U Bonn): Representing Number Theoretic Symmetries with Linear Algebra (Euler-Vorlesung) @U Potsdam
- **29 May 2026:** Angela Gibney (U Penn) (Kovalevskaya Colloquium), @Langenbeck-Virchow-Haus
- **5 June 2025:** Richard von Mises Lecture by Wil Schilders
- **26 June 2026:** Emanuel Milman (Technion) @TU (MA001)
- **10 July 2026:** Silvia de Toffoli (IUSS Pavia) + BMS Certificate Ceremony @FU (T9)

BMS Orientation for Phase II Students

- **19–20 May 2026:** Good Scientific Practice (10:00 - 11:30)

MATH+ Cluster Days

- **18–19 June 2026: @Urania Berlin**

MATH+ Outreach

Math Advent Calendar Award Ceremony on 26 January at FU Berlin

The **award-winning ceremony of both Advent Calendars**—Mathe-im-Leben (for younger students) and MATH+ (for students from grade 10 onwards)—took place on 23 January at FU Berlin. The event was opened by FU Berlin's president and mathematician Günter M. Ziegler, who warmly welcomed all participants and winners. Later on, Claudia Schillings, MATH+ Chair and Professor of Mathematics at FU Berlin, also highlighted the importance of school activities such as the math calendar, and introduced the four application areas of MATH+: Health, Energy, Mobilty, and Technology.

Around 650 winners enjoyed a lively program featuring a math bazaar, stage performances with music, and an engaging math quiz. Those unable to attend in person had the opportunity to follow the event via a live stream. Overall, the ceremony offered an inspiring experience for mathematics enthusiasts of all ages.

We would like to thank all BMS students, MATH+ researchers, and our Dutch colleagues from the 4TU.AMI initiative who contributed math puzzles to this year's MATH+ Advent Calendar: *Fabien Nießen,*

Silas Rathke, Lukas Protz, Hajo Broersma, Pim van't Hof, Thomas Nowotka, Nikola Sadovek, Stella Kapodistria, Marko Boon, Eva Deinum, Tobias Paul, Mehmet Akif Yıldız, Matthew Maat, Mar Curcó Iranzo, Tim Kunt, Lucas van Kreveld, Daniel Gembris, Max Klimm, Zoe Geiselmann, Kevin Kühn.

Read more

MATHINSIDE with Pi Day Talks at TU Berlin—from Mathematical Mysteries to Tropical Geometry

This year's MATHINSIDE event at **Pi Day (14 March)** was held on Friday, 13 March, to allow school classes to participate. **Nearly 300 school students from Berlin**, accompanied by their teachers, as well as additional mathematics enthusiasts, filled the lecture hall at TU Berlin for two engaging talks.

In his talk "The hero we need, but don't deserve—tracing a mathematical mystery," Demian Nahuel Goos (HU Berlin) explored the work of Georg Cantor and Richard Dedekind. He presented letters without which set theory as we know it today might not exist. Lena Weis (TU Berlin) offered a different perspective on evolution, showing how it can be reimagined through tropical geometry—an unusual, modern way of calculating (2 + 4 = 4?!) with surprising links back to familiar school mathematics.

During the break, participants enjoyed the **interactive info stands** and **game booths organized by the TU math library and MATH+,** as well as a presentation of **TU Berlin's newly developed cargo bike**.

Read more