

23th Newsletter – July 2022

Welcome from the Chair

Dear MATH+ Community,

The summer semester is almost over, and we're looking back at many successful events and great news. The MATH+ Friday colloquia have been held live in the physics building at TU, the current Thematic Einstein Semester (TES) ran smoothly, and [two BMS summer schools](#) were organized in June. One of the greatest news was the ["Fields Medal" for former BMS Dirichlet Postdoc Maryna Viazovska](#), and we express our heartfelt congratulations to her.

We are also delighted about the great response to our [special event "Celebrating Math!"](#) on 01 July. As part of the "Millennium Festival" celebrating the Millennium Prize Problems, MATH+ introduced the problem "P versus NP". More than 220 participants joined the morning session in the Futurium, and almost 140 mathematicians took part in the afternoon in the BBAW. The following Certificate Ceremony for graduates and awardees with a reception was a joyful get-together after two years.

Looking ahead, **36 project ideas** will be presented during the **Cluster Days on 05/06 September**. Mark your calendars for the **MATH+ Day with the General Assembly and the election of a new Chair and board on 18 November 2022!**

We would also like to remind you of the upcoming deadlines on 01 September for the [Hanna Neumann Fellowships](#), for [workshop funding](#), and for [Visiting Scholars](#) (see attached announcements).

The new program **MATH+ Distinguished Fellows** addresses colleagues in Berlin, recognizing their outstanding contributions to the mathematical sciences in general. We are delighted to announce that **Gavril Farkas** of HU Berlin is the [first MATH+ Distinguished Fellow](#). Congratulations!

MATH+ is also continually expanding the service for its members. Thus, we offer an [External Job website](#) that can only be used by MATH+ members of the five institutions and the University of Potsdam.

Though it seems far away, the Berlin Science Week (BSW) in November is coming soon. Any ideas to present your MATH+ research to the general public are welcome. Please get in touch with Beate Rogler.

If you have any news that you wish to share regarding your research, publications, prizes, or interesting guests, please contact Beate Rogler with more details at rogler@mathplus.de.

Have a good summer,



MATH+ Chair

MATH+ News

+ “Celebrating Math” on 01 July

MATH+ was part of the “[Millennium Festival](#)” organized at seven locations in Germany, celebrating the 20th anniversary of the Millennium Prize Problems and what has happened in researching them since. A diverse program of talks and activities around the Problem “P versus NP” was presented in Berlin. More than 230 participants, mainly high school students, participated in the morning session for the general public at the Futurium. They listened to the explanatory talks of the “P versus NP” problems given by Martin Skutella and Sarah Morell (both TU Berlin) as well as Kurt Mehlhorn (MPII Saarbrücken). The event was completed with a journalist session and small exhibitions of AI-Art, a comic introduction, and a Decision Theatre.

The expert lecture on “P versus NP” with more than 130 participants was given as MATH+ [Friday Colloquium by Irit Dinur](#) in the afternoon at the BBAW. The lecture was preceded by a “What is...?” seminar for the BMS students. After the Friday Colloquium, the festive Certificate Ceremony honored the BMS graduates and MATH+ Dissertation Award winners and ended with a beautiful reception. Seeing so many community members after two years was fantastic.

[Read more](#) | [Watch the recordings of all presentations on the MATH+ YouTube channel](#)

+ Fields Medal 2022 for Maryna Viazovska, Former BMS Dirichlet Postdoc at HU Berlin (2014-2016)

On 05 July 2022, the Ukrainian mathematician [Maryna Viazovska \(EPFL Lausanne\)](#) was awarded a [Fields Medal](#) “for her solution of the sphere packing problem in eight dimensions, as well as further contributions to related extremal problems and interpolation problems in Fourier analysis.”

Congratulations!

We are proud that Maryna Viazovska had been a [BMS Dirichlet Postdoctoral Fellow](#) at Humboldt-Universität from 2014-2016 as a member of Jürg Kramer’s [arithmetic geometry research group](#) and was part of the Berlin mathematical community. Just recently, in May 2022, she gave the MATH+ Kovalevskaya Colloquium about “Sphere packings, universal optimality, and Fourier interpolation”.

[Read more](#)

+ Graphic Novel About the “Decision Theatre” on Sustainable Mobility

As part of “Celebrating Math!” in the Futurium on 01 July, we were happy to offer a book-signing: The graphic novel “[Ida und der Mathe-Agent. Oder eine Geschichte vom Modellieren der Mobilität von Morgen](#)” is telling the story of [Sarah Wolf](#) (FU Berlin) and her team, using the science communication format “Decision Theatre” to educate about sustainable mobility. The (German) book was drawn by Alberto Madrigal, who was also present in the Futurium to sign the books.

Decision Theatres on sustainable mobility is a science communication project funded through a Ralf-Dahrendorf prize for the European Research Area by the German Federal Ministry for Education and Research. Sarah Wolf is the [MATH+ Junior Research Group Leader](#) at Freie Universität Berlin and head of the BUA-funded MATH+ science communication project “[Schule @ Decision Theatre Lab](#)”.

+ DFG Granted 3rd Funding Periods for CRC 1114 and CRC/TRR 154

On 27 May, the DFG announced that both the [CRC 1114 “Scaling Cascades in Complex Systems”](#) and the [TRR 154 “Mathematical Modeling, Simulation, and Optimization Using the Example of Gas Networks”](#) will be funded for a third funding period! **Congratulations!**

Frank Noé (FU Berlin) and Marita Thomas (WIAS) will lead the CRC 1114 in the future. Friedrich-Alexander-Universität Erlangen-Nürnberg is the lead university of the TRR 154 while Caren Tischendorf (HU Berlin) is Co-Chair on the Berlin node, which also includes TU Berlin and WIAS.

[Read more](#)

MATH+ People

+ The First MATH+ Distinguished Fellow: Gavril Farkas



We are delighted to announce that [Gavril Farkas](#) (HU Berlin) has been named as the first MATH+ Distinguished Fellow! **Congratulations!**

He is one of the world's leading mathematicians in the field of algebraic curves and was awarded an ERC Advanced Grant for groundbreaking research in Algebraic Geometry in 2019.

[Read more](#)

+ MATH+ Professor Gabriele Steidl (TU Berlin) Honored as SIAM Fellow



The Society for Industrial and Applied Mathematics (SIAM) selected Gabriele Steidl (TU Berlin) as a Fellow in the SIAM Fellows Class 2022. **Congratulations!**

[Gabriele Steidl](#) has been a MATH+ Professor for Applied Mathematics at TU Berlin since March 2020. Her research interests are mathematics for image and data processing focusing on harmonic analysis, continuous optimization, and machine learning.

[Read more](#)

+ MATH+ Member Marc Alexa Received ERC Advanced Grant



[Marc Alexa](#), Professor of Computer Science at Technische Universität Berlin, has been awarded an ERC Advanced Grant for his research project EMERGE (Geometry Processing as Inference). **Congratulations!**

The project EMERGE (Geometry Processing as Inference) aims to use the methods of geometry processing for the processing of higher-dimensional structure.

[Read more](#)

+ The Following BMS-Students Have Successfully Completed Their Doctorate

Luzie Helfmann (FU Berlin)

“Non-stationary Transition Path Theory with applications to tipping and agent-based models”

Jonathan Kliem (FU Berlin)

“Applications of Topology, Combinatorics and Algorithms to Discrete Geometry”

Tom Heinz Klose (TU Berlin)

"The Laplace method for singular stochastic PDEs"

Davide Lofano (TU Berlin)

"Simplification Strategies and Extremal Examples of Simplicial Complexes"

Jan-Hendrick Niemann (FU Berlin)

“Learning Reduced Models for Large-Scale Agent-Based Systems

Joscha Podlesny (FU Berlin)

“Multiscale Modeling and Simulation of Deformation Accumulation in Fault Networks”

Ray Chew Wei Jin (FU Berlin)

"Balanced Local Data Assimilation with a Blended Numerical Model for Geophysical Flows"

Lukas Wessels (TU Berlin)

"Optimal Control of Stochastic Reaction-Diffusion Equations"

Niklas Björn Wulkow (FU Berlin)

"Modelling Observations of Dynamical Systems with Memory”

Congratulations!

MATH+ Events

Review

+ Mall Anders Events: “Meet the Scientist” on 06 May 2022 and “Storytelling” on 10 June 2022

Young scientists from Berlin’s Clusters of Excellence presented their research project at the [“Meet the Scientist”](#) event in the [Mall Anders](#), a pop-up science lab located in the “Wilma Shoppen” center. The contributing researchers came from the excellence clusters MATH+, UniSysCat, NeuroCure, Contestations of the Liberal SCRIPT (SCRIPTS), and Matters of Activity. For MATH+, Felix Günther and Nina Smeenk (both TU Berlin) introduced their research “Aesthetics of Mathematics: Architecture and Geometry”. The science communication format **“Storytelling”** presents scientists who talk about how they became interested in research and how fascinating it is to be a scientist. On 10 June, young researchers from Berlin’s Cluster of Excellences told their own stories in the Mall Anders - personally, vividly, and excitingly. MATH+ member Felix Günther talked about his story and research using the title „Was wackelt denn da? Wie Architektur und Mathematik zueinander finden“.

+ Two successful BMS Summer Schools in May/June 2022

BMS Summer School “Geometry and Topology in a Discrete Setting” (23 May – 03 June)

The two-week BMS Summer School [Geometry and Topology in a Discrete Setting](#) took place live from 23 May to 03 June 2022 at Zuse Institute Berlin. The summer school introduced 56 participants (36 BMS/20 external) from 12 countries to mathematics at the confluence of discrete mathematics, geometry, and topology. The focus was on recent work that exhibits the hidden geometry and topology of combinatorial problems.

TES/BMS Summer School “Mathematics of Complex Social Systems” (09 – 17 June 2022)

The week-long BMS Summer school [Mathematics of Complex Social Systems](#) took place 09-17 June at Freie Universität Berlin and Zuse Institute Berlin and was part of the Thematic Einstein Semester “[The Mathematics of Complex Social Systems: Past, Present, and Future](#)”. In cooperation with the BMS and the School of Complex Adaptive Systems at Arizona State University, this summer school brought together an international and interdisciplinary group of around 40 Master and Ph.D. students to learn about different modeling approaches for complex social systems through a series of expert lectures and hands-on workshops. The topics included agent-based and network models with applications, for example, in opinion dynamics and the evolution of cooperation, as well as economics and archeological research.

[Read more](#)

+ MATH+ at the “Long Night of Sciences” with “Meet the Scientist”, a “Science Pub Quiz”, and the “Kinder-Uni” on Mathematics and Soccer

MATH+ participated at the “Lange Nacht der Wissenschaft” on 01 July with several great events. All seven Berlin Clusters of Excellence joined the “**Meet the Scientist**” format in the Humboldt Labor of the Humboldt Forum with a research project presentation. Dr. Felix Günter and BMS PhD student Nina Smeenk, both of TU Berlin, talked about the “Aesthetic of Mathematics: Architecture and Geometry”.

The exciting and fun “**Science Pub Quiz**” organized by MATH+ in TU Biergarten atmosphere received huge interest. 37 teams with about 160 participants competed for the prize discussing fascinating questions from many fields of science. MATH+ interview guests added some questions about their research projects and talked about the math cluster.

As part of the “**Kinder-Uni**” at TU Berlin, Martin Skutella explained to more than 100 children and their parents what mathematics and soccer have in common. Hertha BSC sponsored attractive prizes that were awarded to the ten lucky winners of the subsequent math-soccer quiz.

[Read more](#)

+ External Job Offers: Jobs for Mathematicians in Berlin as a Service for MATH+ Members

MATH+ is offering to [publish job offers](#) in Berlin, which are not associated with MATH+. If you would like to register a job offer on the MATH+ homepage, please visit the following website and fill in the form: <https://mathplus.de/news/jobs-math-berlin/job-offer/>. MATH+ will first check the offer before it will be publicly available on the **External Jobs** website of MATH+ under the NEWS section.

Preview

+ Upcoming Deadlines (please also check the MATH+ members' area for all calls)

Hanna Neumann Fellowships: 01 September

Workshop Support: 01 September

Visiting Scholars: 01 September

+ MATH+ Events

05-06 September: MATH+ Cluster Days

12-16 September: Conference "[The Interdisciplinary World of Tangling](#)"

18 November: MATH+ Day

+ Other Events

12-16 September: DMV Annual Meeting 2022 in Berlin