Dear MATH+ Community,

We hope that you adjusted to working from home and that your online teaching is going well. As a father of four schoolchildren, I am only too well familiar with the many inherent challenges and complications of working from home. We are all the more looking forward to slowly getting back to a more normal situation with access to our offices at university.

We’d like to inform you about a planned section on the MATH+ website that will focus on research projects related to the coronavirus. Here, we will showcase projects demonstrating how MATH+ can support the research community in these times. Please contact Prof. Gitta Kutyniok and Beate Rogler from the MATH+ office if you already have research results that we can publish there.

You also have probably noticed that recently, we posted several articles about research projects of MATH+ members and BMS alumni on our social media accounts. Would you please support us and share the information?

You can find us on Facebook (BMS: https://www.facebook.com/BerlinMathematicalSchool/) and on Twitter (BMS: https://twitter.com/berlinmath).

On a positive note, at times when all activities and events have to be suspended, there is more time and space for the introduction of new MATH+ members like the MATH+ professor Gabriele Steidl, junior research group leaders, and Dirichlet postdocs. Some of them are either already in Berlin or will be coming soon to strengthen our Math+ community. Please read more about them in the “People” section below.

If you have any interesting news that you wish to share regarding your research, publications, prizes, interesting guests, the other MATH+ communication formats, or the next newsletter, please contact Beate Rogler at the MATH+ Office <press@mathplus.de>.

Wishing you good health and stay safe! We are looking forward to seeing you all again soon!
Mobility traces and the spreading of COVID-19 in Berlin

Scientists of the research group around Kai Nagel at TU Berlin create simulations on Berlin and reopening scenarios. They are actually experts in human mobility research. But now, they used their human mobility models and supplemented them with previously known virus infection dynamics, on the one hand, to create new calculations for the possible spread of the virus. On the other hand, these simulations can also be used to calculate the potential success of measures such as contact restrictions or school closings.

Kai Nagel is also a member of MATH+. Together with Martin Skutella, he does research in the Application Area "Networks" (AA3) on the topic of "Nash flows over time in transport and evacuation simulation. You can find the regularly updated simulation results here: https://matsim-vsp.github.io/covid-sim/

Read more (Press Release by TU Berlin, in German)
Read more (MATH+ Application Areas)

Research team around BMS Alumnus and MATH+ member developed an open-source drug discovery platform for searching compounds that could block the coronavirus proteins

The development of new active compounds in medicine can take many years and potentially cost billions of euros. An international team of scientists with the participation of researchers from FU Berlin and TU Berlin has now succeeded in developing a platform that can examine billions of potential active compounds in the shortest possible time. The results of the research project were published in the renowned Nature journal. Inspired by the corona pandemic, the researchers have now started to use this platform to search for potentially active compounds that could block the coronavirus proteins.

The main results of the publication are based on the dissertation of Christoph Gorgulla, who is an alumnus of the Berlin Mathematical School (BMS). He received his PhD from FU Berlin with a scholarship from the Einstein Center for Mathematics (ECMath). Currently, he is a postdoctoral research fellow at Harvard University. MATH+ member Konstantin Fackeldey is also part of the project team. He is a private lecturer at the Institute of Mathematics at TU Berlin, and he cooperates with the Zuse Institut Berlin in the framework of the MATH+ Cluster of Excellence.

Read more (Nature article)
Read more (Joint press release by FU Berlin and TU Berlin, in German)
Appointments

+ **Gabriele Steidl started her MATH+ professorship at TU Berlin**

Since March 2020, Gabriele Steidl is the new MATH+ Professor for Applied Mathematics at the TU Berlin. Her research interests are mathematics for image and data processing with a focus on harmonic and convex analysis and continuous optimization.

Gabriele Steidl received her PhD and habilitation in mathematics from the University of Rostock in 1988 and 1992, respectively. From 1993 until 1996, she was an Assistant Professor at the TU Darmstadt (1993-1996) before she was appointed professor at the University of Mannheim (1996-2011) and later at the TU Kaiserslautern (2011-2020).

Further, she worked as consultant at the Verband Deutscher Rentenversicherungsträger Frankfurt am Main (1992-1993) and as advisor at the Fraunhofer Institute for Industrial Mathematics. She was a visiting professor at several universities, e.g. at the École Normale Supérieure Paris-Cachan, the University Paris-Est Marne-la-Vallée and the Sorbonne Université in Paris.

Gabriele Steidl is a member of the DFG Fachkollegium in mathematics.

Read more

+ **Nicole Mücke – Head of a MATH+ Junior Research Group at TU Berlin**

Nicole Mücke took up her position as head of the MATH+ Junior Research Group "Mathematical Foundations of Data Science” at TU Berlin in March 2020.

She is currently working in the field of statistical learning theory, in particular, deep learning, the efficiency of kernel methods, stochastic approximation methods, and statistical inverse problems.

Nicole Mücke studied mathematics both in Potsdam and at HU Berlin. She received her Ph.D. from the University of Potsdam in October 2017. Afterward, she held postdoc positions at the Istituto Italiano di Tecnologia Center for Convergent Technologies for one year, and for another year at the University of Stuttgart before she returned to Berlin.

Read more
Sarah Wolf - Head of a MATH+ Junior Research Group at FU Berlin

Since December 2019, Sarah Wolf is Head of the MATH+ Junior Research Group “Mathematics for Sustainability Transitions” at FU Berlin. Her research interests are in the field of agent-based modeling and simulation for addressing societal challenges, in particular, a sustainability transition as envisaged by the European Green Deal.

She is working on a mathematical foundation for empirical agent-based models that can be used in Decision Theatres - a dialogue format for involving stakeholders and citizens in the research process. Decision Theatre discussions are supported by visualization of empirical information and simulated future evolutions, and participants can experiment with model scenarios.

Sarah Wolf studied mathematics at HU Berlin. Since her PhD studies at the Potsdam Institute for Climate Impact Research and FU Berlin, her research has been interdisciplinary. She has worked on economic and agent-based modeling in the context of Green Growth at the Global Climate Forum, where she was also involved in the development of the Decision Theatre methodology. She is a member of the Executive Committee of the Complex Systems Society and a Board Member of the Global Climate Forum.

Read more

Amy Wiebe: BMS-Dirichlet Postdoc at FU Berlin

Amy Wiebe has been a postdoc at Freie Universität Berlin since October 2019, where she is part of the Discrete Geometry group. Amy introduces herself as follows:

I am a combinatorialist doing research in geometric combinatorics with connections to applied algebraic geometry and optimization. This is why I am particularly interested in the realization spaces of polytopes. Additionally, I have a background in the mathematics of information theory and problems relating to digital communications.

In 2019, I received a PhD from the University of Washington. Previously, I had received a Master’s from Simon Fraser University.

My commitment to supporting women in mathematics is also very important to me. In the past, I was an active member of a student chapter of the Association of Women in Mathematics, and currently, I am a member and volunteer of the Network of Women in Combinatorics.

Read more
András Cristian Lőrincz: BMS-Dirichlet Postdoc at HU Berlin

Since April 2020, András Cristian Lőrincz is a BMS Dirichlet Postdoctoral Fellow working at HU Berlin. His main research interests lie in the areas of algebraic geometry, commutative algebra, and representation theory. The study of geometric properties in the presence of symmetries is a recurring theme in this research. Some topics that he is currently working on include D-modules, toric varieties, representation theory of quivers, prehomogeneous vector spaces.

András received his PhD in 2016 from the University of Connecticut, after completing his bachelor's degree at Babeș-Bolyai University and a master's degree at Northeastern University. Before joining HU Berlin, he held postdoctoral positions at Purdue University and Max-Planck-Institut MiS.

Read more

Jonathan Leake: BMS-Dirichlet Postdoc at TU Berlin

Jonathan Leake is one of the new Dirichlet postdocs, he will start his position at TU Berlin this summer. His research interests lie somewhere at the intersection of combinatorics, complex analysis, and polynomials; especially analytic questions concerning linear operators and zeros of polynomials, discrete approximation, and applications to computer science.

Jonathan Leake received his PhD from the University of California at Berkeley in 2019. Since then, he has held postdoc positions at KTH in Stockholm and at the Institute Mittag-Leffler in Stockholm. While at TU Berlin, he will be working in Professor Peter Bürgisser’s group.

Read more
Due to the spread of Covid-19, most of the MATH+ Events are cancelled until further notice.

+ The International Congress on Mathematical Software 2020 (ICMS 2020) will be arranged as a virtual conference, 13-16 July 2020

Despite the extraordinary conditions, the International Congress on Mathematical Software 2020 (ICMS 2020) will be organized as a virtual conference between 13-16 July 2020. ICMS is a bi-annual congress that gathers the mathematicians, scientists and programmers who are interested in the development of mathematical software. The detailed schedule of the event will be announced later. The deadline for submitting abstracts has expired.


+ 15th INFORMS Telecommunication and Network Analytics Conference postponed to 30 August – 02 September 2020

The conference will focus on the theory and application of operations research and management science to problems in telecommunications and network analytics, with particular emphasis on new and emerging technologies.

Important dates:
- Call for Session, Tutorial and Single Abstract: 01 June 2020
- Abstract Submission Deadline: 22 June 2020
- Acceptance Notification for Presentations: 09 July 2020
- End of Early Registration: 27 July 2020
- Conference: 30 August - 2 September 2020
- Proceedings Paper Submission Deadline: October 2020

Attendance is free for MATH+ members, but prior registration is mandatory. To register send an e-mail with your name and affiliation to <informs_tnac2020@zib.de>.

For more information visit the website: http://informs_tnac2020.zib.de.