

19th Newsletter – October 2021

Welcome from the Chair

Dear MATH+ Community,

I hope you all enjoyed a refreshing summer break and have returned well-rested and ready for the challenges of the winter semester.

As most of you know, we received 25 proposals in our call, which were presented during the **MATH+ Cluster Days** (30-31 August). I am happy that so many excellent young researchers participated and will receive funding. The next MATH+ Highlight is coming soon with the annual **MATH+ Day and the General Assembly** on 05 November 2021. More details will follow shortly.

The new **Thematic Einstein Semester** of the winter semester 2021/22 on “[Mathematics of Imaging in Real-World Challenges](#)” started with a **Kick-Off-Workshop from 06-08 October**. For more information, see below.

In August, MATH+ welcomed [Alexander O. Govorov](#) from Ohio University (USA) as **MATH+ Distinguished Scholar**. He will be collaborating with Sven Burger at ZIB.

We already have scheduled three **MATH+ Fridays** in the winter semester: **22 October** (Mathieu Rosenbaum from École Polytechnique), **19 November** (Edith Elkind from the University of Oxford), and on **03 December** (Marcos Mariño from the University of Geneva).

On **28 October**, it is our turn to present MATH+ in the “[MitWissenschaft](#)” series in the **Humboldt Forum**. The event will be live and start at 7:00 pm. **We have 30 tickets**, which we’ll distribute on a first come, first served basis. Please email rogler@mathplus.de for tickets.

At the end, we have to share some sad news: we mourn the loss of [Andreas Griewank, who passed away](#) unexpectedly at the age of 71. Andreas was an esteemed colleague and a wonderful person.

If you have any news that you wish to share regarding your research, publications, prizes, or interesting guests in the other MATH+ communication formats or the next newsletter, please contact Beate Rogler with details: rogler@mathplus.de.

With best wishes,

+ BMS Call for Dirichlet Postdoc Fellowship (Deadline: 01 December 2021)

The call for applications for the Dirichlet Postdoc Fellowship starting in 2022 is online: <https://math-berlin.de/bms-faculty/dirichlet-postdoctoral-program>.

The two-year position is open to promising young mathematicians who will have completed their PhD degree by 30 September 2022.

[Read more](#) (BMS Website)

+ Kick-off Workshop of the TES “Mathematics of Imaging in Real-World Challenges”

The next **Thematic Einstein Semester** (TES) in the winter semester 2021/22 on “[Mathematics of Imaging in Real-World Challenges](#)” will be organized by [Hans-Christian Hege](#) (ZIB), [Michael Hintermüller](#) (HU Berlin, WIAS), [Tobias Schäffter](#) (TU Berlin, PTB), and [Gabriele Steidl](#) (TU Berlin). It aims to bring together researchers from mathematical image and data processing, which involves a manifold of mathematical areas, as well as computer scientists and researchers with an application-specific focus. The TES started with a [kick-off workshop in October](#) and will conclude with the [SIAM Conference on Imaging Science](#) in March 2022.

[Read more on the TES website](#)

+ Nature Communications Publication on Dormancy Phenomena in Life Science by MATH+ Scientists

The paper "[Principles of seed banks and the emergence of complexity from dormancy](#)" by [Jochen Blath](#) (TU Berlin) and [Maite Wilke-Berenguer](#) (HU Berlin) was accepted in *Nature Communications*. Together with co-authors from biology and statistical physics/W-theory, they present a comprehensive interdisciplinary research program on the mathematization of dormancy phenomena in the life sciences that is partly covered by the MATH+ project EF 4-7. They outline the fundamental attributes and emergent phenomena associated with dormancy and seed banks, with the vision for a unifying and mathematically based framework that can address problems in the life sciences, ranging from global change to cancer biology.

+ IMoS Building at TU Berlin Celebrates Topping-Out Ceremony

On 31 August 2021, the topping-out ceremony for the new research building **IMoS** - Interdisciplinary Center for Modeling and Simulation - at TU Berlin was celebrated in the presence of the Governing Mayor of Berlin and Senator for Science and Research, Michael Müller, the Senator for Urban Development and Housing, Sebastian Scheel, and the President of TU Berlin, Prof. Dr. Christian Thomsen. The building is scheduled for completion at the end of 2022 and will also accommodate the MATH+ Central Office.

Prof. Volker Mehrmann from the Institute of Mathematics is the driving force behind the IMoS building as he explains in a [short film presented on TU Berlin's YouTube channel](#).

[Read the press release of TU Berlin](#) (in German)

MATH+ People

+ MATH+ Distinguished Visiting Scholar: Alexander O. Govorov from Ohio University

In August 2021, MATH+ welcomed [Alexander O. Govorov](#) for his first visit as MATH+ Distinguished Visiting Scholar 2021. Govorov is considered one of the world's leading experts in theoretical condensed-matter physics. He is doing research on optical and electronic phenomena in nanostructures such as quantum dots, quantum rings, colloidal nanocrystals, and nanowires.



During his visits, Prof. Govorov is the guest of the [Zuse Institute Berlin \(ZIB\)](#) and will closely collaborate with Sven Burger and the [Computational Nano Optics](#) group. Topics of the planned collaboration are investigations of quantum and classical multiscale models, their numerical realizations, and applications to energy research and photonics. The collaboration is tightly

linked to MATH+ projects in the [Application Areas AA2-Materials, Light, Devices](#) and [AA4-Energy and Markets](#).

[Read more](#)

+ MATH+ Mourns the Loss of Andreas Griewank

In 2003, Andreas Griewank came to HU Berlin as a MATHEON professor. He was an active member of the Research Center MATHEON and the Berlin Mathematical School (BMS) as well as an outspoken and committed member of the Berlin mathematics community. Although he retired in 2015, Andreas Griewank continued to participate not only in the academic life of Berlin but also worldwide: he committed his energy to the newly founded Universidad Yachay Tech in Ecuador, where he served as dean of the Mathematics Faculty since 2015.



On 16 September 2021, Andreas Griewank passed unexpectedly away at the age of 71. Berlin mathematics has lost a highly respected colleague and wonderful person. Our thoughts are with his family in these hours of grief.

[Read more](#)

+ Sophia Elia from the USA Shares Her BMS Experiences



"It is currently my fifth year at the BMS. I arrived in 2016 for Phase I (Master's), and I am now a finishing Phase II (PhD) student. I grew up in the United States and did my undergraduate at UC Berkeley in California. I knew that I wanted to go to Europe for my PhD for the challenge and opportunity it presented for personal growth.

One of my professors pointed me towards the BMS because it is fairly close to the American style in graduate education. Namely, you can enter with a Bachelor's degree and be on track to obtain your PhD. This was key for me

because I wanted more time to take courses before deciding on an advisor and what type of math to focus on..."

[Read the full report](#) (BMS Website)

+ **The Following BMS-Student Have Successfully Completed Their Doctorate**

Paul Peter Hager (TU Berlin)

"Rough Analysis with Application in Markets and Related Fields"

Tobias Keil (HU Berlin)

"Optimal control of a semi-discrete Cahn-Hilliard-Navier-Stokes system with variable fluid densities"

Gregor Pasemann (TU Berlin)

"Parameter Estimation for Semilinear Stochastic Partial Differential Equations"

Philipp Warode (TU Berlin)

"Parametric Computation of Equilibria and Flows"

Daniel Markus Rehfeldt (TU Berlin)

"Faster algorithms for Steiner tree and related problems: From theory to practice"

Congratulations!

MATH+ Events

Review

+ **MATH+ Cluster Days, 30-31 August 2021**

During this year's MATH+ Cluster Days, we saw presentations of 25 proposals for new MATH+ projects. The Research Projects Committee (RPC) chose 22 projects for funding that will start in early 2022. The corresponding positions will be advertised as soon as possible. All successful projects are welcome to announce their Calls for Applications via the MATH+ channels like the website (jobs@MATH+), MATH+ newsletter, and social media (Twitter, Facebook).

+ **MATH+ Event: Introduction to the RDMO, the Research Data Management Organiser**

Tim Hasler, MATH+ Chief Data Officer, introduced the Research Data Management Organiser (RDMO) to MATH+ members in an online event on 16 September 2021. The RDMO enables institutions and researchers to plan and document their management of research data. In the future, every project in MATH+ needs to have a Data Management Plan (DMP). The RDMO is designed to help them with this. The DMPs are expected to become a necessary prerequisite for funding in a potential second round of the Excellence Strategy.

In the future, MATH+ will offer two information events on RDMO each year.

+ MATHEathlon on 09 September 2021

As part of a practical seminar by [Dr. Luise Fehlinger](#) (HU Berlin), three of her teacher students successfully organized a MATHEathlon – a contest uniting mathematics and physical education. Around 250 sixth-graders from the schools in the [Network of STEM Specialized Schools in Berlin](#) met at Mommsenstadion in Berlin-Westend to compete in four disciplines: Sudoku sprint, Tangram long-distance run, memory hurdling, and permutation can knockdown. Congratulations to all the winners and acknowledgments to all organizers, assistants, and participants!

+ BMS Orientation Week for the New Students

This year, the BMS Orientation week was arranged in a hybrid format with online presentations and live walking tours. 38 new students start in the winter semester 2020/21: 20 in Phase I, and 18 students in Phase II.

On 04 October, BMS chair Jürg Kramer welcomed the Phase I students, followed with introductions on the BMS program, the basic courses, and Master's study regulations. The Phase II Orientation on the next day passed focused on their needs, especially on the mentoring program. The "Berlin Walking Tour" turned out to be a bit rainy, but everyone still had a lot of fun getting to know their new surroundings.

The Orientation week concluded with a 2-days Intercultural Training to prepare the students for studying and living in Germany and Berlin. We are now looking forward and hope that next year's Orientation Week will be conducted entirely in person again.

[Read more](#) (BMS Website)

Preview

+ MATH+ in the "MitWissenschaft" Series of the Humboldt Forum: 28 October 2021, 7:00 PM

[MitWissenschaft](#) is the science series of the *Humboldt Forum*. Its first season is dedicated to Berlin's seven Clusters of Excellence that have contributed to the concept and content of the Humboldt Lab's [After Nature](#) exhibition. **On 28 October, at 7:00 pm, MATH+ scientists will introduce aspects of the research spectrum:** Mobility, Energy, Artificial Intelligence, and Life Sciences. Volker Wieprecht, an RRB broadcast presenter, will lead through the event. **30 tickets are available for MATH+** and we will distribute them on a first come – first served basis. **If you want to be there, please email rogler@mathplus.de.**

+ MATH+ "Decision Theatre" on Sustainable Mobility at the Berlin Science Week on 06 November

From 01-10 November, the [Berlin Science Week](#) presents a vibrant program of science events. MATH+ will be joining this year with a "Decision Theatre" that will take place in the *Museum für Naturkunde* on **06 November, 10:00-11:30 am**. The [Decision Theatre, introduced by Sarah Wolf from Freie Universität and Steffen Fürst from Zuse Institute Berlin](#), is a public discussion forum for decision-making processes on the topic sustainable mobility using mathematical models. Those who might be interested to participate can register at DT@mathplus.de.

+ SAVE THE DATE: MATH+ Day and General Assembly

Please mark your calendars: This year's MATH+ Day will take place on 05 November and begin with the meeting of the General Assembly. The MATH+ Day will take place online using the Gather platform. The program will follow soon.

+ MATH+ Fridays in Winter Semester 2021/22

22 October: [Mathieu Rosenbaum](#) ([École Polytechnique](#)); A rough volatility tour from market microstructure to VIX options via Heston and Zumbach

19 November: [Edith Elkind](#) ([University of Oxford](#)) – Kovalevskaya Colloquium: tba

03 December: [Marcos Mariño](#) ([University of Geneva](#)), tba

+ MATH+ Spotlight Schedule in Winter Semester 2021/22

27 October: [Zeno Schätzle](#) – [AA2-8: Deep Backflow for Accurate Solution of the Electronic Schrödinger Equation](#)

24 November: [Felipe Galarce Marín](#) – [EF3-9: Mathematical Framework for MR Poroelastography](#)

08 December: [Felix Günther](#) – [EF2-1: Smooth Discrete Surfaces](#)

+ Reminder: MATH+ Advent Calendar 2021

Please let us remind you to submit your challenge for the 18th MATH+ Advent Calendar. The mathematical Advent calendar is an integral part of MATH+'s outreach activities and your opportunity to present your research to a broad, young, and bright audience. Although the deadline has already passed, we still accept submissions. Furthermore, it is not too late to engage your group members and (PhD) students. However, if you are interested, please get in touch with Ariane Beier as soon as possible: schools@mathplus.de.

