THE MATH+ HANNA NEUMANN FELLOWS 2026

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

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Hana Dal Poz Kouřimská is a postdoctoral researcher at Universität Potsdam in Professor Myfanwy Evans's research group. Previously, she worked at the Institute of Science and Technology Austria (ISTA) in Professor Herbert Edelsbrunner's research group. She obtained her PhD in mathematics from Technische Universität Berlin (TU Berlin) under the supervision of Professor Boris Springborn, where she was also a member of the Berlin Mathematical School (BMS), the graduate school of MATH+. She completed both her bachelor's and master's degrees at TU Berlin and spent one year at the University of Valencia as part of the Erasmus program.

Hana Dal Poz Kouřimská's research lies at the intersection of differential, discrete, and computational geometry. She applies methods from differential geometry to study algebraic amoebas and uses spaces of constant curvature, particularly hyperbolic geometry, to investigate triangulations and geometric structures on higher-dimensional Riemannian manifolds. Her research also explores connections between spaces of constant curvature and Bregman divergences, with the aim of extending methods from computational geometry and topology to this class of distance measures.

Personal website

Luisa Plato studied Mathematics at TU Berlin and spent a year at Durham University (UK) as part of the ERASMUS program. Through a women's mentoring initiative, she was first introduced to the Weierstrass Institute for Applied Analysis and Stochastics (WIAS), where she wrote her master's thesis on the analysis and numerical simulation of a partial differential equation model for predator–prey interactions within Research Group 4. After completing her master's degree, Luisa continued her research at WIAS as a PhD student under the supervision of Robert Lasarzik and Dietmar Hömberg. She successfully defended her thesis in September 2024 and rejoined Research Group 4 as a postdoctoral researcher in February 2025.

Luisa Plato's research focuses on the analysis, numerical simulation, and optimal control of partial differential equations, with applications to complex fluids (such as anisotropic electrolytes relevant to lab-on-a-chip devices), cross-diffusion systems, and population dynamics models. She is passionate about bridging the gap between mathematical theory and practical applications.

Personal website

Interview with MATH+

Beate Rogler: Congratulations on receiving the MATH+ Hanna Neumann Fellowship! What does this recognition mean to you?

Hana Dal Poz Kouřimská: I am very honored to receive this prestigious MATH+ Hanna Neumann Fellowship. It gives me the opportunity to travel to France and be hosted by Mathijs Wintraecken at the Inria Sophia Antipolis research center at the Université Côte d'Azur near Nice. I will be staying there for a month in November, working on projects that will advance my research and strengthen my research portfolio. At the same time, it feels like a meaningful recognition of my work so far. Having my own funding is also an important step in my career, and I am very grateful for the opportunities this fellowship provides.

Luisa: Plato It is a great honor. Above all, it means I can venture further into the academic world. It allows me to expand my research network and strengthen my collaborations, both of which are key at this early stage of my career. Concretely, I plan to split the fellowship between a research stay at the University of Oxford with Patrick Farrell and a stay at the Courant Institute in New York with Georg Stadler.

What sparked your interest in mathematics?

Hana: I have always liked mathematics, especially because of its logical nature. I appreciated that, unlike subjects that often required learning facts by heart or involved more subjective evaluation, mathematics offered a sense of certainty: if a result was correct, then it was correct. Another important factor was the strong support I received from my mathematics teacher in high school. He encouraged me to study mathematics, and that was definitely a turning point for me. I chose mathematics and have stayed in the field ever since.

Luisa: For me, the beauty of mathematics is that there is no room for interpretation, or only very little. Questions and answers are formulated so precisely that, for everyone who speaks the language of mathematics, they mean exactly the same thing, which is rarely the case in other sciences. I still remember one anecdote from my school days: next to one of my answers on a math exam, my teacher wrote "not meant this way." It made me laugh, because in mathematics there is no such thing. If a question is formulated precisely enough, it leaves no room for it to be "meant" any other way, and that precision is something I have loved ever since.

In your view, what challenges do women in mathematics face?

Hana: I do not think there is a single answer to this question, since every woman is different and faces different challenges. Many women experience imposter syndrome, and some may also feel a sense of exclusion from certain academic communities, although these issues are certainly not exclusive to women. Other common challenges include having to rebuild social networks after each move, which is very common in academic life, as well as balancing a research career with family planning and raising children.

Luisa: Women are still underrepresented in mathematics, and this becomes more and more noticeable the higher you climb the academic ladder. At the master's level, I believe women still make up roughly one-third, but this share drops sharply after the PhD. As a consequence, the few women who remain are often asked to take on extra committee duties, so that these committees are

balanced and gender equality is ensured. This is of course important, but it also takes precious time away from research, which is ultimately what will most likely determine whether you make it to the end, so to a permanent position. The most fundamental challenge, however, is the uncertainty. It affects men and women alike in many respects, yet during the crucial postdoc years, which often coincide with the time when family planning happens, women in particular need longer-term prospects in order to plan around parental leave.

Could you describe your research in a way that is accessible to a broader audience? How does it connect to the work of your host?

Hana: I work on several different projects, so I will focus on the project I will pursue during my fellowship-supported stay in France. Many visualization and simulation programs today are based on triangulations, because triangles are objects that computers can handle very efficiently. Here, "triangles" also refers to their higher-dimensional versions, such as tetrahedra in three dimensions. The choice of triangulation can have a significant impact on the performance of a program: if the triangulation is not chosen well, the program may perform poorly or even fail. For this reason, scientists are interested in quality measures and guarantees for triangulations. My research investigates conditions under which a triangulation can be guaranteed to be "good enough," which connects naturally to the work of my host and their research group.

Luisa: My work focuses on partial differential equations, which are part of the basic vocabulary of the language of mathematics for describing many different phenomena, such as the flow of water. Within this field, I work on three closely related aspects: analysis, optimal control and numerical approximation of such equations. The basic question in analysis is simple: in what sense does a solution exist? This matters because if there is no solution at all, or if the solution behaves badly, then the model itself may need to be revised. In optimization, we instead start from a goal, such as reaching a specific flow velocity at a low cost, and look for conditions that tell us whether we have actually reached the optimum. From an application perspective, the most important aspect is probably the numerical approximation: in general we cannot write down the solution explicitly on paper, so we can only approach it with numerical schemes, which matters because in applications it is the actual behavior of the fluid under given conditions that counts. This field is very broad and diverse, and each model or equation brings its own challenges. In part of my research I focus on models for complex fluids and for charge transport in fluids. Going forward, I want to deepen my expertise on the numerical side to bring my work closer to applications, which is exactly where the computational focus of both of my hosts comes in.

What are you most excited about in your collaboration with your host and the research group you will be visiting?

Hana: This will be my first longer stay in France and my first extended opportunity to engage with the French computational geometry community. I am excited to meet more researchers there and to have the time to learn more about their work. My impression is that there are opportunities to build even stronger connections between the French and broader international computational geometry communities, perhaps in part by bridging language differences. I have already met some French researchers whose work is excellent, and I would love to see it become even more widely known internationally. I am therefore very much looking forward to discovering more of the computational

geometry research being done in France. And, of course, I cannot deny that spending November by the Mediterranean seaside is also a very welcome bonus.

Luisa: Although I have already begun to broaden my research field, I come from the pure analysis side. What excites me most is the chance to venture into new areas and to see partial differential equations from different angles. In Oxford, I will join Patrick Farrell in the numerical analysis group. He led the development of dolfin-adjoint, a Python library for solving optimal control problems for partial differential equations, and he also works on charge transport, so our interests overlap almost perfectly. I am excited to gain new insights into the numerical solution of the very optimal control problem I have studied, to deepen my knowledge of dolfin-adjoint right at the source, and to soak up the inspiring research atmosphere within the group.In New York, I will then visit Georg Stadler, where I will shift my focus toward complex fluids and, in particular, how to incorporate data-driven modeling. This is another important step in bridging the gap between academic work and real-world applications.

What do you hope to gain from the collaboration with your host and their research group?

Hana: Together with my host, we have a concrete plan to finish two projects and submit the corresponding papers to a conference with a deadline at the beginning of December. We also currently have three more papers under review, and depending on the feedback we receive, we may use part of the visit to work on revisions. Beyond these specific projects, I hope to brainstorm and plan future research collaborations. More broadly, I would like to expand and strengthen my research network and hopefully help build stronger connections between the French computational geometry community and the German- and US-based communities that I am more closely connected to. And if, in addition to all that, I manage to get a bit of sun and learn some French, I will consider the visit even more successful.

Luisa: I hope to learn new approaches for tackling my current problems, but just as much to discover new ones, since mathematicians can never have too many of those. I believe that being embedded in a group with a different research culture can be one of the fastest ways to pick up techniques and perspectives. Beyond the mathematics itself, I am excited to experience everyday research life at a university outside of Germany firsthand, not only through talks at conferences but through the day-to-day life in the offices, the spontaneous discussions at the blackboard, and the coffee breaks where many ideas are actually born. And, of course, I hope to build lasting connections and broaden my network along the way.

What are your professional goals for the next few years?

Hana: My long-term goal is to obtain a tenure-track or tenured position, ideally somewhere not too far from Berlin, where my family is based. More concretely, I plan to apply for fellowships that would allow me to continue my research in Germany and possibly start my own research group, including the prestigious *Emmy Noether Programme*. I am also considering applying for an ERC Starting Grant, although I still need to gather the courage to begin working on such a demanding application. In addition, I am keeping an eye out for research group leader positions at Max Planck Institutes. Beyond my own career development, another important goal for me is to continue working toward making the computational geometry community as welcoming and supportive as possible.

Luisa: Over the next few years, I aim to become a more independent researcher. Concretely, that means acquiring my own third-party-funded projects, continuing to expand my academic network, and gaining experience in teaching and supervising students, since this would be a major part of any permanent university position. I expect this to be genuinely rewarding and inspiring, and to bring me a lot of joy. And then, assuming I enjoy this side of the work as much as I anticipate, the natural next step would be to look for a junior professorship or a tenure-track position.

What advice would you give to young women who are considering a career in mathematics?

Hana: I would say: if you like mathematics, be bold and try it out. A career in research, and in mathematics in particular, offers a lot of personal freedom, opportunities to travel, and the chance to be part of fantastic international communities. It can be challenging, but it can also be extremely rewarding. And if you try it and later decide it is not for you, that is completely fine too—you can always choose a different path.

Luisa: If you enjoy math: do it! And it is completely okay to struggle along the way. The beginning of my studies was very intense, but for me the feeling of finally understanding what was going on more than made up for it. Working in math is also not the cliché you might imagine, of pen and paper alone in a dark room, even if that does happen occasionally. In practice it can be highly interactive, with collaborations all around the world. What we do is often so specialized that we have to travel far to find the handful of other people working on the same questions, which, as a nice side effect, means we get to travel a lot. And even if you decide not to pursue a full academic career, you still have plenty of career options in industry with a mathematical degree.

Thank you very much for sharing your insights with us. We wish you a wonderful and inspiring time in France, the UK, and in the U.S., every success with your research, and all the best for the exciting opportunities ahead.