

The **Vienna School of Mathematics (VSM)** is a joint graduate school of the mathematics faculties of the **University of Vienna** and the **TU Wien**. The VSM is devoted to top-level PhD education in all branches of mathematics. It fosters intra- and interdisciplinary scientific cooperation and networking among students and advisors and aims at increasing the international visibility of the Vienna area as a center for mathematics.

The VSM currently announces a PhD position in the area of

**Non-smooth space-time geometry**  
**(University of Vienna, Supervisors: M. Kunzinger, R. Steinbauer)**

*This project is concerned with a highly topical problem on the interface between General Relativity and mathematics. While the language of GR, Lorentzian geometry, has traditionally been formulated in the smooth category, physically realistic models as well as analytic methods applied to the initial value problem for the Einstein equations demand the space-time metric to be non-smooth. Recent strong activities in the study of non-smooth space-time geometry have turned earlier sporadic investigations into a thriving line of research, with the supervisor's research group playing a key role.*

*We offer 1-2 positions in this area. Possible Ph.D. projects may be concerned with causality theory and singularity theorems in low regularity (especially the newly adopted approach for  $C^1$ -metrics), or geodesics in low regularity (especially the relation of energy bounds to uniqueness). The concrete thesis project(s) will be developed jointly with the successful applicant(s).*

*The basic requirement for the position(s) is a good working knowledge in Lorentzian differential geometry. Additionally we require a solid background knowledge in General Relativity and of course in analysis.*

The advertised position(s) is/are associated with the Faculty of Mathematics of the **University of Vienna** in the Research Group on Differential Geometry of Profs. Michael Kunzinger and Roland Steinbauer. The successful candidate(s) will become a member/members of the Vienna School of Mathematics and is/are expected to actively contribute to its activities. The extent of employment is 30 hours per week. The position will start on January 1, 2021.

**Application Requirements and Procedure**

The candidates must have a master degree (or equivalent) in Mathematics at the moment the PhD position starts. The application documents should contain a letter of motivation; the scientific CV with publications list; higher education certificates/diplomas; and letter(s) of recommendation. Applications have to be sent to [office@vsmath.at](mailto:office@vsmath.at). The deadline for applications is **November 6, 2020**.