

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

Optimal control and analytical mechanics for generalized smooth functions (University of Vienna, Supervisor: P. Giordano)

The thesis topic will be developed inside the FWF project “Applications of generalized smooth functions” (PI Paolo Giordano, co-PI: Michael Kunzinger). The main aim is to rigorously prove an extension of Pontryagin’s maximum principle to generalized functions and to start the development of analytical mechanics in the same setting. The latter also includes the development of the related notions of differential geometry. The framework is that of Colombeau theory and nonlinear analysis of generalized functions. See <https://www.mat.univie.ac.at/~giordap7/> for a detailed description of the project.

A good background in calculus of variations and analytical mechanics is a basic requirement for the position. Prior experience with the study of Colombeau generalized functions is an advantage but not strictly required. Similarly, background on non-Archimedean rings and analysis, will be advantageous but not strictly required.

The advertised position is associated with the Faculty of Mathematics of the **University of Vienna** in the Differential Algebras and Nonlinear Analysis (DIANA) research group of Prof. Dr. Michael Kunzinger. The successful candidate will become a member of the Vienna School of Mathematics and is expected to actively contribute to its activities. The extent of employment is 30 hours per week. The position will start as soon as possible, after the selection of the candidate will be finished, and is supported for 3 years.

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. The deadline for applications is **November 6, 2020**. Before the final decision, selected candidates will have an online interview with P. Giordano based on the understanding of a given article and the development of a simple research problem.