



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

**Cross-diffusion systems for tumor growth:
finite-volume approximation and stability analysis
(Technische Universität Wien, Supervisor: Ansgar Jüngel)**

The aim of the PhD project is to understand the emergence of spike-like solutions in a tumor-growth model, which can be interpreted as an encapsulation of the tumor. The first task is the design of a finite-volume scheme in one and two space dimensions, its numerical analysis and implementation. A second possible task is a stability and/or bifurcation analysis in terms of the pressure parameter. Finally, more complex models, including the blood vessel phase may be analyzed too.

The basic requirement for the position is a very good working knowledge in at least one of the fields connected to the project: Nonlinear partial differential equations, numerical analysis, finite-volume methods or similar.

The advertised position is associated with the Institute of Analysis and Scientific Computing of the Technische Universität Wien. It is financed by the ERC Advanced Grant "Emerging network structures and neuromorphic applications". 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, and the salary includes full social security. The funding is guaranteed for at least three years. The position will start on 01 June 2023 or later.

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 preferably sent directly to manuela.khaladj@tuwien.ac.at by the person writing the letter. Applications shall be sent to manuela.khaladj@tuwien.ac.at, in a **single** PDF file. The deadline for applications is **April 21, 2023**.