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

## Universal Phenomena in Analytic Combinatorics
## (TU Wien, Supervisor: Michael Wallner)

This position is part of the FWF-funded ASTRA project "Universal Phenomena in Analytic Combinatorics" (UNPAC). The project acts as a bridge between Analytic, Probabilistic, and Combinatorial approaches to discrete mathematics. It aims to uncover and utilize universal and unconventional asymptotic phenomena of large discrete structures appearing in combinatorics, computer science, and biology.

We are looking for a PhD candidate interested in working on one or more of the following aspects of lattice paths, graph-structures, or bivariate recurrences:

- **Analytic:** Asymptotics of lattice paths (1D and higher), bivariate recurrences, and characterizing generating functions with "unconventional" behavior like stretched exponentials.
- **Probabilistic:** Limit laws, phase transitions, and random structures.
- **Combinatorial:** Bijections, graph structures, and modeling applications ranging from phylogenetic networks (biology) to protocol encapsulation (computer science).

The specific research direction is flexible. We explicitly encourage candidates with a strong background in *any* of these three pillars to apply. The concrete thesis project will be developed jointly with the successful applicant to optimally match their individual strengths and interests.

For more information, please visit https://dmg.tuwien.ac.at/mwallner/unpac.

We are looking for a candidate with a solid background in **Discrete Mathematics, Combinatorics,** and **Complex Analysis**. Knowledge of analytic combinatorics is an advantage, but not strictly required. Furthermore, familiarity with computer algebra systems (Maple, Mathematica, or SageMath) and programming is highly valued to support the project's computational aspects.

The advertised position is associated with the **Institute of Discrete Mathematics and Geometry** at **TU Wien** in the research group Combinatorics and Algorithms led by Prof. Michael Drmota. 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 with a standard FWF PhD salary. The position is expected to start in September 2026, but later dates are also possible. The duration is 3 years, with possible extension.

**Application Requirements and Procedure**

The candidates must have a Master's degree (or equivalent) in Mathematics at the moment the PhD position starts. The application documents should contain a letter of motivation (including title and topic of Master's thesis, as well as name and contact details of the supervisor; max. 1 page); the scientific CV with publications list (if available); higher education certificates/diplomas; a list of courses taken so far; grade reports; the Master's thesis (if available); and letter(s) of recommendation preferably sent directly to michael.wallner@tuwien.ac.at by the person writing the letter. Applications have to be sent to michael.wallner@tuwien.ac.at if possible in a single PDF file. The deadline for applications is **April 30, 2026.** Applications received after this date may be considered if the position has not yet been filled. Shortlisted candidates will be invited for an (online) interview.