



**The Research Group on Applied Mathematics and Optimization** at the Faculty of Mathematics of the University of Vienna, headed by Radu Ioan Boț, has its core research areas in Nonsmooth and Convex Optimization. Currently it offers

**1 Doctorate Research Position (3 years) at the  
Faculty of Mathematics, University of Vienna**

within the **FWF-funded** research project **Employing Recent Outcomes in Proximal Theory Outside the Comfort Zone**.

The main scientific target of the project is to employ recent advances concerning some classical techniques used so far mainly for iteratively minimizing convex functions in Hilbert spaces to research fields lying outside their comfort zone. These methods evolve around the notion of proximality, which relies on evaluating a certain regularization of the addressed mathematical object. Due to its reliability, simplicity and accuracy, the proximal theory was successfully employed for solving nondifferentiable convex optimization problems and monotone inclusions with complex structures as well, proving a strong positive impact on the treatment of real-life applications with high-dimensional data.

The research themes to be addressed in this project range from the employment of the paradigm of proximality in broader frameworks like considering generalized distances, working in more general underlying spaces and addressing the direct solving of multiobjective optimization problems to the approach of monotone inclusions problems via first- and second-order dynamical systems. The expected results should have impact beyond the corresponding research areas both in mathematical fields like ordinary differential equations, partial differential equations, optimal control, functional analysis, game theory, equilibrium problems and optimal transport theory, and in the solving of real-life problems arising in optimal location selection, image processing, machine learning, quantification of risk, network communication and video processing.

The position is available from **September 1st, 2016**. The salary is as suggested by the FWF according to a doctorate position. The working load for the project is 30 hours per week. The deadline for application is **June 30th, 2016**.

**Required Qualifications**

The candidates should have a master degree (or equivalent) in Mathematics, a solid theoretical background and strong computer skills. Fluency in the English language has to be proven. Applications (including a letter of motivation, curriculum vitae, the master thesis, peer reviewed research publications, copies of academic certificates and a letter of recommendation) should be sent to: [min.hadler@univie.ac.at](mailto:min.hadler@univie.ac.at). More information can be found on <http://www.mat.univie.ac.at/~rabot>.