Vienna School of Mathematics

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Variational Methods for Evolution Equations
(University of Vienna, Supervisor: U. Stefanelli)

Nonlinear evolution equations are ubiquitous in applications and pose a variety of challenging mathematical questions, from well-posedness, to regularity. Variational methods provide far-reaching modeling and analytical tools. Among these, the Weighted Inertia-Energy-Dissipation (WIDE) approach has already proved successful in a range of classical situations. This global variational approach paves the way to applying to nonlinear evolution problems the tools of the calculus of variations such as the Direct Method, variational approximation, and relaxation.

The focus of the thesis project is to assess the applicability of the WIDE variational principle in new directions. These may include generalized doubly nonlinear flows, stochastic partial differential equations, conservations laws and fluids, and optimal control problems. The position is funded by a FWF grant with a strong international cooperation component. Profs. Goro Akagi (Sendai), Takeshi Fukao (Kyoto), and Hao Wu (Shanghai) are part of the international research team.

Applications have to be sent via the Job Center of the University of Vienna at Reference number 10412. The deadline for application is **February 20, 2020**.