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## DK Seminar

April 29, 2015, 14:00 - 15:30  
Vienna University of Technology,  
Freihaus, green area, 4th floor, 101C

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### Multi-scale dynamics in Microstructures

We consider a singularly perturbed, non-convex variational problem describing microstructures in one space dimension. The minimizers of the functional exhibit a complicated multi-scale behavior. We propose a dynamical systems approach to analyse the critical points of the functional by applying methods from geometric singular perturbation theory to the corresponding Euler-Lagrange equations. We prove the existence of periodic solutions which explain the observed multi-scale structures. Numerical computations based on AUTO are performed in order to study quantitative properties and bifurcations of solutions as key parameters vary.