## S5E2 — Graduate Seminar on Efficient Simulation

Prof. Dr. Martin Rumpf, Dr. Martin Lenz

The seminar will be concerned with the discussion of different approaches to simulate damage and fracture processes in materials. A unifying motif will be the treatment of the time evolution as a rate-independent variational problem and appropriate discretization techniques.
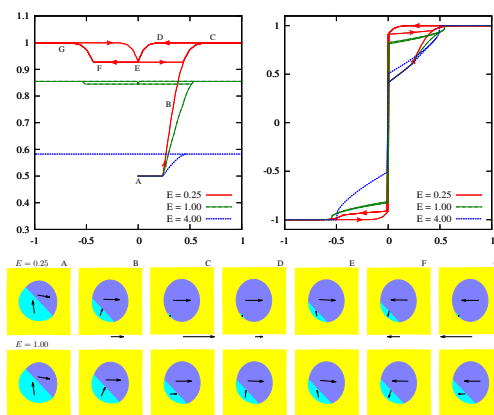
Rate-independent hysteresis loop in a magnetic shape memory material.

There will be a arrangement meeting on

Friday, October 12th, 2018 at 12 c.t. in room 2.040, Endenicher Allee 60.

The seminar itself will be scheduled a a block seminar in January.

Literature

Mielke: Evolution of rate-independent systems. 2005.

Mielke, Roubíček: Numerical approaches to rate-independent processes and applications in inelasticity. 2009.

Mielke, Paoli, Petrov, Stefanelli: Error-estimates for space-time discretization of a rate-independent variational inequality. 2010.

Roubíček, Kružík, Zeman: Delamination and adhesive contact models and their mathematical analysis and numerical treatment. 2013.

Bourdin, Francfort, Marigo: Numerical experiments in revisited brittle fracture. 2000.

Allaire, Jouve, Van Goethem: Damage and fracture evolution in brittle materials by shape optimization methods. 2011.