

Global spatial regularity results for elasticity models with cracks, damage, contact and other nonsmooth constraints

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For the analysis of strongly coupled material models it is useful to have deeper insight into the spatial regularity properties of the involved quantities like displacement fields or internal variables. In this lecture we will discuss some recent results for non-smooth situations with a special focus contact problems with nonsmooth obstacles, friction models and for certain time-dependent damage models in the small strain regime. The talk relies on joint results with R. Rossi (University of Brescia), C. Zanini (Politecnico di Torino) and A. Schröder (University of Salzburg).

References:

- [1] D. Knees, A. Schröder: Global spatial regularity for elasticity models with cracks, contact and other nonsmooth constraints, *Mathematical Methods in the Applied Sciences. Special Issue: Perspectives in Continuum Mechanics*, 35(15) (2012), 1859–1884, 2012.
- [2] D. Knees, R. Rossi, Ch. Zanini: A quasilinear differential inclusion for viscous and rate-independent damage systems in non-smooth domains, *Nonlinear Analysis Series B: Real World Applications*, 24 (2015), 126–162.