MANUEL FRIEDRICH
Linearization of models with surface discontinuities

In this talk, we consider nonlinear models for elastic materials exhibiting surface discontinuities, such as the Griffith functional of brittle fracture or a model for material voids in elastically stressed solids. By means of Gammma-convergence we derive effective linearized functionals in the limit of vanishing strains, where the resulting free discontinuity problems in linear elasticity are formulated in the space of generalized special functions of bounded deformation. I will also discuss the possibility of including a non-interpenetration constraint in the nonlinear and linearized models. Based on joint works with S. Almi, V. Crismale, E. Davoli, L. Kreutz, K. Zemas.