

Gastvortrag

Mittwoch, 27. Februar 2019

Uhrzeit: 16:00 Uhr

Hörsaal Seminarraum II

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Semicoercive Variational Inequalities: Existence, Regularization, and Numerical Solution of Nonmonotone Contact Problems

Abstract:

Semicoercive variational inequalities model unilateral contact problems in solid mechanics where the elastic body is not fixed by prescribed displacements (Dirichlet boundary conditions), but is only subject to loads and friction along the contact boundary and where the body nevertheless cannot escape because of geometric conditions. We start with existence theory for this delicate situation where coercivity of the elastic energy is not available, use recession arguments and employ Browder-Tychonov regularization for the elliptic operator. To smooth the jumps in the hemivariational term we employ regularization techniques of nondifferentiable optimization. As a concrete example we consider the deformation of an elastic block sliding in a rusty rail and provide numerical results for benchmark tests.

Eingeladen von Lothar Banz