
Variational methods applied to discrete models in brittle damage

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Abstract

In this talk, I will study a discrete model of brittle damage in different regimes where the damaged zone concentrates on vanishingly small sets. We will identify the nature of the effective limit models obtained by means of an asymptotic analysis based on the Gamma-convergence of the total energies. I will recall the mechanical model of brittle damage introduced by Francfort and Marigo (1993), specified to the discrete setting where the total energies are restricted to piecewise affine continuous displacements, and I will, in particular, show how the size of the mesh influences the effective models.

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