

Discrete approximation of the Griffith functional by adaptative finite elements

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This joint work with Jean-François Babadjian is devoted to showing a discrete adaptative finite element approximation result for the isotropic two-dimensional Griffith energy arising in fracture mechanics. The problem is addressed in the geometric measure theoretic framework of generalized special functions of bounded deformation which corresponds to the natural energy space for this functional. It is proved to be approximated in the sense of Γ -convergence by a sequence of integral functionals defined on continuous piecewise affine functions. The main feature of this result is that the mesh is part of the unknown of the problem, and it gives enough flexibility to recover isotropic surface energies.

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