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## Variational analysis for the nonlinear elastic energy induced by edge dislocations: the dilute regime.

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We introduce nonlinear semi-discrete and discrete models for the elastic energy induced by a finite system of edge dislocations in two dimensions.

We analyze the asymptotic behavior of the nonlinear elastic energy, as the lattice spacing (in the purely discrete model) and the core-radius (in the semi-discrete framework) vanish. We work within the dilute regime, corresponding to a finite number of effective singularities.

Joint work with R. Alicandro, G. Lazzaroni, M. Palombaro, M. Ponsiglione.

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