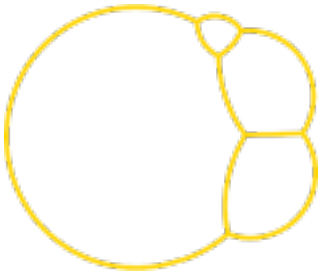

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# The elastica functional as the critical Gamma limit of a nonlocal isoperimetric problem

*Friday, 24 June 2022 10:20 (50 minutes)*

I will consider the large mass limit of a nonlocal isoperimetric problem in two dimensions with screened Coulomb repulsion, so that to leading order the nonlocal interaction localizes on the boundary of the sets. For an appropriate choice of screening constant, the perimeter is exactly cancelled out, requiring an analysis of the next order contribution. It turns out that then the nature of the problem changes from length minimization to curvature minimization: I will prove that the Gamma limit is given by (the relaxation of) the elastica functional, i.e., the integral over the squared curvature over the boundary.

This is joint work with Cyrill Muratov and Matteo Novaga.

**Presenter:** SIMON, Theresa (Universität Münster)