

Variational stabilization of degenerate p -elasticae

Tatsuya Miura
(Kyoto University)

Email: tatsuya.miura@math.kyoto-u.ac.jp

In this talk we discuss a new stabilization phenomenon induced by degenerate diffusion, which the speaker and Yoshizawa recently discovered in the context of pinned planar p -elasticae. In our previous work [1–3] we proved that in the non-degenerate regime $p \in (1, 2]$, including the classical case of Euler’s elastica, there are no local minimizers other than unique global minimizers. In our recent work [4] we proved that, in stark contrast, in the degenerate regime $p \in (2, \infty)$ there emerge uncountably many local minimizers with diverging energy.

1. T. Miura, K. Yoshizawa, *Complete classification of planar p -elasticae*, Ann. Mat. Pura Appl. (4) 203 (2024), no. 5, 2319–2356.
2. T. Miura, K. Yoshizawa, *Pinned planar p -elasticae*, to appear in Indiana Univ. Math. J.
3. T. Miura, K. Yoshizawa, *General rigidity principles for stable and minimal elastic curves*, J. Reine Angew. Math. 810 (2024), 253–281.
4. T. Miura, K. Yoshizawa, *Variational stabilization of degenerate p -elasticae*, to appear in J. Lond. Math. Soc.