

AN ISOPERIMETRIC INEQUALITY FOR ELASTIC CURVES

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ABSTRACT. I report on recent joint work with Vincenzo Ferone and Carlo Nitsch and show that the elastic energy $E(\gamma)$ of a closed curve γ has a minimizer among all plane simple regular closed curves of given enclosed area $A(\gamma)$, and that the minimum is attained for a circle. The proof is of a geometric nature and deforms parts of γ in a finite number of steps to construct some related convex sets with smaller energy.

REFERENCES

- [1] V.Ferone, B.Kawohl, C.Nitsch, *The Elastica Problem under Area Constraint*, arXiv: 1411.6100v1