Universität Hamburg
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Lothar-Collatz-Kolloquium für Angewandte Mathematik

Donnerstag, den 13. Juni 2024, um 17:15 Uhr, im Hörsaal 5

Prof. Dr. Hans-Christoph Grunau*
(Otto von Guericke Universität Magdeburg, Institut für Analysis und Numerik)

"Smallness conditions in obstacle problems for Euler's elastica functional"

Zusammenfassung/Abstract:

Obstacle problems for Euler's elastica functional are discussed, subject to Dirich- let boundary conditions in the class of one-dimensional symmetric graphs over the unit interval.

Similarly as in earlier work by Anna Dall'Acqua and Klaus Deckelnick on Navier boundary conditions, existence and regularity of minimisers are shown, provided that the obstacles are "strictly" below one arc of the well known periodic elastica. The main focus of the talk, however, is on showing that a related smallness condition on the obstacle is indeed necessary for solvability. This generalizes previous results by Dall'Acqua-Deckelnick and Marius Müller. Finally, optimality of this smallness condition is shown.

The talk is based upon joint work with Shinya Okabe (Tohoku University, Sendai, Japan).

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