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Lothar-Collatz-Kolloquium für Angewandte Mathematik

Donnerstag, den 27. Juni 2024, um 17:15 Uhr, im Hörsaal 5

Prof. Dr. Gian Paolo Leonardi*
(University of Trento, Italy, Department of Mathematics)

"Boundary properties of almost-minimizers of the relative perimeter"

Zusammenfassung/Abstract:

Given an open n-dimensional set Ω with Lipschitz boundary, a set E is an almost-minimizer of the relative perimeter if it minimizes the functional $P(E,\Omega)$ (roughly speaking, the $(n-1)$-area of $\partial E \cap \Omega$) among local competitors, up to a suitably quantified error. While interior regularity theory for almost-minimizers has been established since 1984, much less is known about the boundary behavior even of perimeter minimizers, when the boundary of Ω is not at least of class $C^{1,1}$. We present some results in this direction: a boundary monotonicity formula, that is valid under a so-called visibility property of Ω at a given point $x\in \partial\Omega$, and a vertex-skipping property for almost-minimizers in 3-dimensional convex domains, under no extra smoothness assumptions on $\partial \Omega$. The optimality of the restriction to dimension 3 of the second result will also be discussed. This research is in collaboration with Giacomo Vianello (UniTN).

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