



Universität
Münster



Colloquium Wilhelm Killing

The geometric impact of overdetermined boundary value problems

Prof. Dr. Tobias Weth (Universität Frankfurt)
16 November 2023 | 2:15 pm | M5

In the context of fairly simple elliptic partial differential equations, overdetermined boundary conditions arise in the search of optimal shapes in a broad range of problems, e.g., in fluid mechanics, the theory of elasticity, electrostatics and integral geometry. Due to their relevance, the resulting overdetermined boundary value problems are addressed in prominent conjectures. The Berestycki-Caffarelli-Nirenberg conjecture from 1997, disproved by Sicbaldi in 2010, has led to various recent results on the existence and classification of extremal unbounded domains. These unbounded optimal shapes can be regarded as analogues of constant mean curvature surfaces governed by nonlocal effects. Schiffer's conjecture, and the related Pompeiu problem in integral geometry from 1929, are still open. In my talk, I will discuss a choice of classical and recent results on overdetermined boundary value problems, including joint work with M.M. Fall and I.A. Minlend.

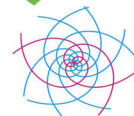
Zoom Meeting ID: 913 7047 4263

Tea time starts at 3:15 pm in the Cluster Common Room (Orléans-Ring 10, ground floor).

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