

Mathematische Institute der WWU – Kolloquium Wilhelm Killing

Bending surfaces and turbulent energy cascades

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18.07.2013, 16:30 Uhr, Hörsaal M 5

One of the cornerstones of the theory of 3-dimensional turbulence is the idea of an energy cascade: in a turbulent fluid the energy is transferred successively to smaller and smaller scales by inertial forces until at the smallest scale it is transferred to heat by viscous dissipation. A consequence is the so-called dissipation anomaly. Although as a heuristic explanation the energy cascade is widely accepted by the community, few rigorous results are known. This is also closely related to a famous conjecture of Onsager from 1949 and to Kolmogorov's theory of turbulence. In joint work with Camillo De Lellis we interpret this cascade using an old idea of John Nash and obtain a method of construction, which can be seen as a "hard" PDE version of Gromov's convex integration. In the talk I will recall the result of Nash on isometric embeddings, explain some basics of 3D turbulence and report on current progress regarding Onsager's conjecture.

Tee wird ab 16:00 Uhr im Sitzungszimmer SR 0 des Mathematischen Instituts serviert.

Fachbereich 10
Mathematik und Informatik
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