



Wir laden recht herzlich zu einem Vortrag im Rahmen des

Oberseminars Partielle Differentialgleichungen

ein:

Prof. Dr. Barbara Brandolini

(Università degli Studi di Napoli Federico II)

*“Sharp bounds for eigenfunctions and eigenvalues of non-linear
Neumann problems”*

Donnerstag, 07. Februar 2019

Beginn: **15:15 Uhr**

Raum: **F0426**

Interessenten sind herzlich willkommen!

R. Denk, R. Racke, O. Schnürer

Zusammenfassung: We prove a sharp lower bound for the first nontrivial Neumann eigenvalue $\mu_1(\Omega)$ of the p -Laplace operator ($p > 1$) in a Lipschitz, bounded domain Ω in \mathbb{R}^n . Differently from the pioneering estimate by Payne-Weinberger, our lower bound does not require any convexity assumption on Ω , it involves the best isoperimetric constant relative to Ω and it is sharp, at least when $p = n = 2$, as the isoperimetric constant relative to Ω goes to 0. Moreover, in a suitable class of convex planar domains, our estimate turns out to be better than the one provided by the Payne-Weinberger inequality.

Furthermore, we prove that, when $p = n = 2$ and Ω consists of the points on one side of a smooth curve γ , within a suitable distance δ from it, then $\mu_1(\Omega)$ can be sharply estimated from below in terms of the length of γ , the L^∞ norm of its curvature and δ .