UNIVERSITÄT DES SAARLANDES
Fakultät für Mathematik und Informatik
Fachrichtung Mathematik

Mathematisches Kolloquium

Am Freitag, dem 11. November 2016 spricht um 14 Uhr c. t. im Hörsaal IV der Fachrichtung Mathematik (Gebäude E2 4)

Prof. Dr. Alexander Nazarov
St. Petersburg Dept of Steklov Institute
and St. Petersburg State University

über das Thema:

A tale of life of a function of one variable
(how to prove positivity of a positive function)

Abstract: Let $1 \leq p, q, r \leq \infty$. We are interested in the sharp constant for the generalized Poincaré inequality (for $r = \infty$ the last relation is understood in the limit sence)

$$\lambda_{pqr} = \min \frac{\|y'\|_{L_p[-1,1]}}{\|y\|_{L_q[-1,1]}}; \qquad \int\limits_{-1}^{1} |y(t)|^{r-2} y(t)\, dt = 0. \tag{1}$$

Problem (1), so as its particular cases and some equivalent problems, arise, mostly for $r = 2$, in various fields of mathematics, e.g. the problem of optimality of some goodness-of-fit criteria and estimation of critical values in the Lagrange problem. Many papers, beginning from *B.Dacorogna, W.Gangbo, N.Subia, AIHP-AN (1992)*, studied bifurcations of extremals in (1). We establish the final result in this problem.

Theorem. *The minimizer in (1) is odd function iff $q \leq (2r-1)p$. In this case $\lambda_{pqr} = \mathfrak{F}(\frac{1}{q}) \cdot \mathfrak{F}(\frac{1}{p'})/\mathfrak{F}(\Theta)$, where $\mathfrak{F}(s) = \frac{\Gamma(s+1)}{s^s}$, $\Theta = \frac{1}{q} + \frac{1}{p'}$.*

The talk is based on a joint paper with Ivan Gerasimov *(J. Math. Sci., 2011)*.

Der Gast wird von Frau PD Dr. Daria Apushkinskaya betreut.

Alle Interessenten sind zum Vortrag herzlich eingeladen.

Kaffee und Tee ab 13.45 Uhr im Konferenzraum der Mathematik   (Erdgeschoss, Raum 103)

Die Dozenten der Mathematik