



## Mathematisches Forschungsinstitut Oberwolfach

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### Oberwolfach Seminar

Moduli Spaces of Riemannian Metrics

### Date/ID:

8 June - 14 June 2014 (1424a)

### Organizers:

Wilderich Tuschmann, Karlsruhe  
David J. Wraith, Maynooth

### Programme:

The topics to be presented in this Seminar cut across a variety of geometric and topological areas, so participants will have exposure to a wide range of contemporary geometric and topological ideas, with moduli spaces of Riemannian metrics as the unifying theme. The material will be organized into 'strands', with each strand focusing on a particular technique or family of techniques. The relevant topological and geometric background will be developed as necessary. There will be two main strands. These are:

i) How analyzing the soul can lead to moduli space results for non-compact manifolds with non-negative sectional curvature.

ii) Moduli spaces of closed manifolds with positive Ricci or positive scalar curvature and the Kreck-Stolz  $s$ -invariant.

In addition a third strand, namely an introduction to the work of Farrell and Ontaneda on moduli and Teichmüller spaces in negative and non-positive sectional curvature, will be presented and developed as time permits.

Discussions centering on open problems will be an important part of the seminar.

### Literature:

It will suffice to understand the main definitions and the statements of the main theorems.

I. Belegradek, S. Kwasik, R. Schultz, *Moduli spaces of nonnegative sectional curvature and non-unique souls*, J. Differential Geom. 89 (2011), no. 1, 4985

B. Botvinnik, B. Hanke, T. Schick, M. Walsh, *Homotopy groups of the moduli space of metrics of positive scalar curvature*, Geometry and Topology 14 (2010), 2047-2076

V. Kapovitch, A. Petrunin, W. Tuschmann, *Nonnegative pinching, moduli spaces and bundles with infinitely many souls*, J. Differential Geom. 71 (2005) no. 3, 365-383

M. Kreck, S. Stolz, *Nonconnected moduli spaces of positive sectional curvature metrics*, J. Am. Math. Soc. 6 (1993), 825-850

D. J. Wraith, *On the moduli space of positive Ricci curvature metrics on homotopy spheres*, Geometry and Topology 15 (2011), 1983-2015

### Deadline for applications:

1 April 2014

The Oberwolfach Seminars are organized by leading experts in the field, and address postdocs and Ph.D. students from all over the world. The aim is to introduce the participants to a particular interesting development. The seminars take place at the Mathematisches Forschungsinstitut Oberwolfach. The Institute covers accommodation and food. By the support of the Carl Friedrich von Siemens Foundation, travel expenses can be reimbursed up to 150 EUR in average per person. Participants can ask for travel support during their stay in Oberwolfach at the guest office against copy of travel receipts. The number of participants of a seminar is restricted to 25.

**Applications** including:

- full name and address, including e-mail address
- short CV, present position, university
- name of supervisor of Ph.D. thesis
- a short summary of previous work and interest
- title, ID and date of the intended seminar

should be sent preferably by e-mail (pdf files) to:

**Prof. Dr. Dietmar Kröner**

Vice Director MFO

Mathematisches Forschungsinstitut Oberwolfach

Schwarzwaldstr. 9-11

77709 Oberwolfach-Walke

Germany

**seminars@mfo.de**