

Scientific Report of Daniele Zuddas
Short Visit Grant
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I traveled to Bulgaria from 5 to 12 September 2010 to participate to two international conferences. The former was the International Workshop on Global Analysis and PDE on Manifolds at the Institute of Mathematics and Informatics of the Bulgarian Academy of Sciences in Sofia, and the latter was the International Colloquium on Differential Geometry and its Related Fields at the Department of Algebra and Geometry of the University of Veliko Tarnovo.

On both conferences I gave a contribution with a talk titled ‘Lefschetz fibration structures on 4-dimensional 2-handlebodies’. The aim was to explain some new results in 4-manifolds topology that I found in collaboration with Nikos Apostolakis (City University of New York) and with Riccardo Piergallini (University of Camerino).

Our main theorem states that, under a technical and conjecturally non-trivial restriction, any two Lefschetz fibrations over the 2-disc have diffeomorphic total 4-manifolds if and only if they can be related by a sequence of moves which we defined explicitly. Also, we give applications to open books on 3-manifolds (as a consequence we obtain a simpler form for Harer’s moves for open books). This work is still in progress, and we plan to produce a preprint by October 2010.

The visit to Bulgaria was very interesting, as other participants made useful comments and suggestions about my work.

Cagliari, September 13, 2010.


Daniele Zuddas