Berlin Mathematical School

BMS Friday Colloquium

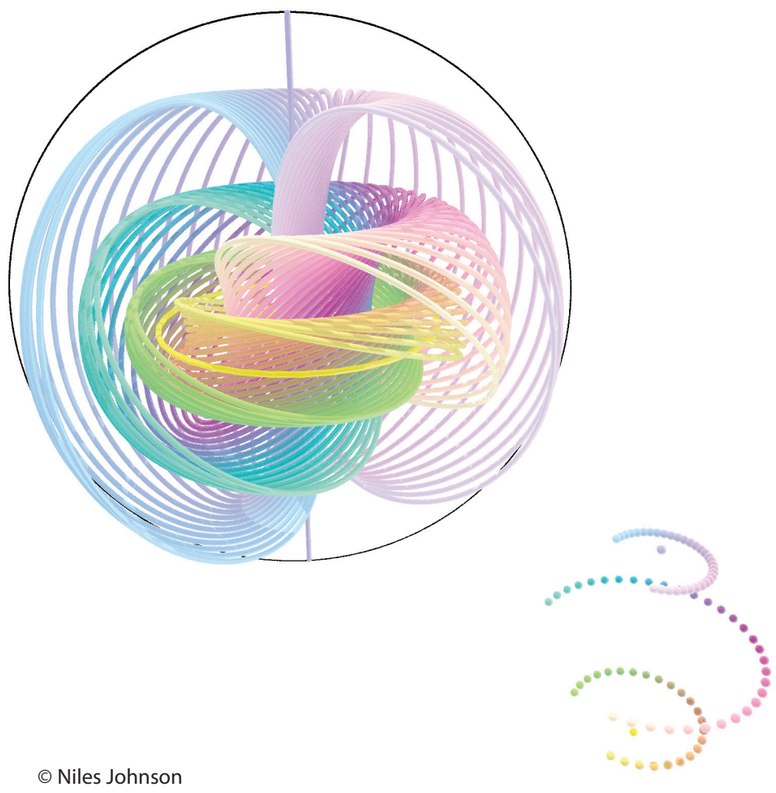
Friday 12 December 2014 at 14:15

Tea & Cookies starting at 13:00

BMS Loft, Urania, An der Urania 17, 10787 Berlin

Alberto Abbondandolo

(Ruhr-Universität Bochum)



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A promenade on the two-sphere

Geodesic flows are one of the favourite playgrounds for people working in dynamics: they are simple to describe, easy to visualise, and can exhibit a wide range of behaviours. They can be seen as special classes of Hamiltonian systems, but actually they are able to describe the motion on high energy levels of any classical Hamiltonian system, provided that one enlarges the class of metrics and includes Finsler ones.

In his talk, Abbondandolo will focus on Riemannian and Finsler geodesic flows on the simplest of all manifolds: the two-sphere. And on the simplest of all possible motions: periodic ones, or in other words, closed geodesics.

The study of closed geodesics on the two-sphere has given challenging problems to many generations of mathematicians: important contributions were given by Poincaré, Birkhoff, Lusternik, Schnirelmann, Morse, Alexander and, more recently, Katok, Calabi, Croke, Franks, Bangert and Hingston. Some of their contributions will be described in this talk, together with more recent results and some open problems.

Alberto Abbondandolo received his PhD in 1999 at the Scuola Normale Superiore of Pisa. He taught at the Courant Institute of New York, at the Scuola Normale and at the University of Pisa, and is now at the University of Bochum. He works in dynamical systems and symplectic geometry. In 2005 he received the “Caglioti Prize for Mathematics”.

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