Erwin Schrödinger Lecture

Tuesday, December 3, 2013 - 5 p.m.

Boltzmann Lecture Hall - ESI, Boltzmanngasse 9, Vienna

Hans Werner Ballmann
(U Bonn, MPI of Mathematics Bonn):

Small eigenvalues on hyperbolic surfaces

Eigenvalues of the Laplacian on closed hyperbolic surfaces are called small, if they lie below $1/4$, the bottom of the spectrum of the Laplacian on the hyperbolic plane. Buser showed that, for any $\varepsilon > 0$, the surface S of genus $g \geq 2$ carries a hyperbolic metric such that $\lambda_{2g-3} < \varepsilon$, where the eigenvalues are counted according to their magnitude. He also showed that $\lambda_{2g-2} \geq c > 0$, where c is independent of genus and hyperbolic metric, and conjectured that $c = 1/4$ is the best constant. I will discuss the conjecture of Buser, its recent solution by Otal and Rosas, and some related problems and results.

Hans Werner Ballmann holds the chair in differential geometry at the University of Bonn since 1989 and is Scientific Member and Director of the MPI for Mathematics since 2007.

The Erwin Schrödinger Lectures are directed towards a general audience of mathematicians and physicists. In particular it is an intention of theses lectures to inform non-specialists and graduate students about recent developments and results in some area of mathematics or mathematical physics.

The lecture will be followed by an informal reception in the spirit of Advent.

Joachim Schwermer