Institute of Mathematical Research
HKU

Department of Mathematics
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Hong Kong Geometry Colloquium
November 27, 2010 (Saturday)
Room 210, Run Run Shaw Bldg., HKU

Professor Peter Greiner

University of Toronto, Canada

On Geodesics

10:00 – 11:00am

Abstract

The main concern is the local uniqueness of geodesics in Riemannian geometry and the multiple geodesic connections in subRiemannian geometry between arbitrarily near points. I am mostly interested in subRiemannian, nonholonomic geometry and will discuss a conjecture about a canonical submanifold which may yield the missing directions invariantly. An interesting consequence is an analytic derivation of the Atiyah-Singer index theorem from the small time asymptotic of an appropriate heat kernel.

11:00 – 11:20am   *Tea Break*

Professor Marc Troyanov

Ecole Polytechnique Fédérale de Lausanne, Switzerland

L_{qp}-cohomology and Geometry of Riemannian Manifolds

11:20am – 12:20pm

Abstract

L_{qp} cohomology is an invariant of (non compact) Riemannian manifolds. It is defined as the de Rham cohomology, but considering closed differential forms in L_p modulo those forms which are the differential of an L_q form. In this talk, I will explain basic definitions and facts about this invariant as well as some connections with Sobolev inequalities for differential forms, PDE, quasi-conformal maps and quasi-isometry invariants.

This meeting is hosted by the Institute of Mathematical Research, HKU.

All are Welcome