GEOMETRY: EXCHANGES AND PERSPECTIVES

INSTITUT HENRI POINCARÉ, PARIS, JUNE 7 2018

Schedule and abstracts

9h00 – 9h30	Welcome coffee
9h30 – 10h30	**Survey Talk**, Miles Simon (1/2)
10h30 – 11h00	*Coffee break*
11h00 – 12h00	**Survey talk**, Miles Simon (2/2)
12h00 – 13h15	*Lunch at the IHP*
13h15 – 14h15	Raquel Perales
14h15 – 15h15	**Survey talk**, Valentino Tosatti (1/2)
15h15 – 15h45	*Coffee break*
15h45 – 16h45	**Survey talk**, Valentino Tosatti (2/2)

Miles Simon (Universität Madgeburg) – Survey talk

Local Ricci flow and limits of non-collapsed regions whose Ricci curvature is bounded from below I – II

In these talks, we explain how a local Ricci flow can be used to obtain a bi-Hölder correspondence between non-collapsed (possibly non-complete) 3-manifolds with Ricci curvature bounded from below and Gromov-Hausdorff limits of sequences thereof. This is joint work with Peter Topping and the proofs build on results and ideas from recent papers of Hochard and Topping+Simon.

Valentino Tosatti (Northwestern University) – Survey talk

The Kähler-Ricci flow

The behavior of the Ricci flow on compact Kähler manifolds is intimately related to the complex structure of the manifold. In particular on projective manifolds it has direct connections with the minimal model program in algebraic geometry. I will give an introduction and overview of what is known about the behavior of the flow, including its maximal existence time, the formation of singularities in finite time, and the long-time behavior of solutions which exist for infinite time, and also discuss many open questions.

Raquel Perales Aguilar (UNAM Oaxaca) – Research talk

Volume entropy rigidity for RCD spaces.

Volume entropy measures the exponential growth rate of the volume of balls in the universal cover. It's related to the topological entropy, minimal volume, bottom spectrum of the Laplacian of the universal cover, among others. For n-dimensional Riemannian manifolds with Ricci curvature bounded below by $-(n-1)$, the volume entropy is smaller than or equal to $n-1$. Ledrappier-Wang showed that the equality holds iff the manifold is hyperbolic. We extend this to $RCD(-(N-1), N)$ spaces. While the upper bound follows quickly, the rigidity case is quite involved due to lack of smooth structure in RCD spaces.