

# GEOMETRY: EXCHANGES AND PERSPECTIVES

INSTITUT DE MATHÉMATIQUES DE JUSSIEU, PARIS, 16 MAI 2019

## Program and abstracts

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9h00 – 9h30	Welcome
9h30 – 10h15	<b>Expository talk</b> , Jason Lotay (1/2)
10h15 – 10h45	<i>Coffee break</i>
10h45 – 11h30	<b>Expository talk</b> , Jason Lotay (2/2)
12h00 – 13h30	<i>Lunch break at the IHP</i>
13h30 – 14h30	<b>Research talk</b> , Heather Macbeth
14h45 – 15h30	<b>Expository talk</b> , Samuel Tapie (1/2)
15h30 – 16h00	<i>Coffee break</i>
16h00 – 16h45	<b>Expository talk</b> , Samuel Tapie (2/2)

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**Jason Lotay (University of Oxford)** – Expository talk

*Lagrangian mean curvature flow*

*Abstract* : It is well-known that in Kähler-Einstein manifolds, the mean curvature flow preserves the Lagrangian condition. This leads to important potential applications relevant to symplectic topology, Riemannian geometry and theoretical physics, particularly in the setting of Calabi-Yau manifolds. I will describe some of the key aspects of Lagrangian mean curvature flow, and provide a survey of progress and open problems in the field.

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**Samuel Tapie (Université de Nantes)** – Expository talk

*Geodesic dynamics and Laplace spectrum in negative curvature*

*Abstract* : The geodesic flow on a Riemannian manifold is a dynamical system whose long time behaviour provides many topological and geometrical informations. The Laplace-Beltrami is an elliptic operator whose spectral properties also encapture many topological and geometrical data. In many aspects, the dynamics of the geodesic flow and the spectrum of the Laplacian are known to be related.

We will present in this talk some precise relationships between the bottom of the spectrum of the Laplacian (first eigenvalue, associated eigenfunction, bottom of the essential spectrum. . .) and asymptotical dynamical properties (counting of geodesics, mixing of the flow. . .) which hold for hyperbolic non-compact manifolds. This talk will gather some classical results by Patterson and Sullivan together with recent works.

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**Heather Macbeth (École normale supérieure)** – Research talk

*TBA*