

HAMILTON JACOBI EQUATION IN METRIC SPACES AND APPLICATIONS

CYRIL ROBERTO

After a quick recall of the classical Hamilton Jacobi equation and of its associated Hopf-Lax formula in the Euclidean space, we will give a generalization to general metric spaces. Then we will present (if time allows) two applications: the first is a generalization of the fact that the log-Sobolev inequality implies some transport-entropy inequality (a result known as Otto-Villani's theorem); the second is a new characterization of the Poincaré Inequality in term of dimension free concentration properties.

The talk is based on a series of paper in collaboration with Nathael Gozlan and Paulmarie Samson.

REFERENCES

- [1] Gozlan, N., Roberto, C. and Samson, P.M. *Hamilton-Jacobi equations on metric spaces and transport-entropy inequalities*. Revista Matematica Iberoamericana 30 (2014), no. 1, 133–163.
- [2] Gozlan, N., Roberto, C. and Samson, P.M. *From dimension free concentration to Poincaré inequality*, Calc. Var. Partial Differential Equations 52 (2015), no. 3-4, 899–925