

# Séminaire de Probabilités et Statistique

Mardi 30 Avril 2024 à 14h00

Salle de conférences

**Florentin Münch**

Max Planck Institute for Mathematics in the Sciences

*Markov chain curvature and mixing*

We show that the Ollivier Ricci curvature of a Markov chain controls the log-Sobolev constant. In case of non-negative Ollivier sectional curvature, the log-Sobolev constant can be lower bounded by the minimum Ollivier Ricci curvature. By this, we answer an open question by Peres and Tetali. In case of non-negative Ricci curvature, the log-Sobolev constant can be lower bounded in terms of the diameter. Moreover in case of non-negative Ollivier Ricci curvature, we give an upper bound for the spectral gap in terms of the mixing time. This gives a quantitative negative answer to the question by Naor and Milman, whether there can be expander graphs with non-negative curvature.