

Heat flow on Alexandrov spaces

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This talk is based on a joint work with N. Gigli (Nice) and S. Ohta (Kyoto). We show that, on compact Alexandrov spaces with curvature bounded below, the gradient flow of the Dirichlet energy in the L^2 -space produces the same evolution as the gradient flow of the relative entropy in the L^2 -Wasserstein space. Our identification is established by purely metric means, unlike preceding results relying on PDE techniques. In this sense, our method is new even on smooth spaces such as Riemannian manifolds. As a consequence of our identification, we can combine known properties of these flows to deduce the further properties of the heat flow. In this way, we obtain the Lipschitz continuity of the heat kernel as well as Bakry-Émery's gradient estimate and the Γ_2 -condition.