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Katharine Turner* (kate@math.uchicago.edu), kate@math.uchicago.edu, and **Yuriy Mileyko**, **Sayan Mukherjee** and **John Harer**. *Fréchet means for distributions of persistence diagrams (Part 1)*.

One of the central objects in Applied Topology is the persistence diagram. We consider the space of such diagrams as a metric space under a version of the Wasserstein distance and show it is a non-negatively curved Alexandrov space. We define the Fréchet mean for a probability distribution. This talk endeavors to give an intuition about geodesics in the space of persistence diagrams and what the Fréchet mean of finitely many persistence diagrams is. (Received September 01, 2012)