

**WASSERSTEIN SOBOLEV SPACES AND APPLICATIONS TO THE  
COMPUTATION OF THE WASSERSTEIN DISTANCE**

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We study the metric Sobolev space on the space of Borel probability measures on the Euclidean space endowed with the Wasserstein 2-distance, proving its Hilbertianity and the density in energy of cylindrical functions. We then provide applications of the abstract density result to the efficient computation of the Wasserstein distance. The talk is based on joint works with Pascal Heid (TU Munich), Massimo Fornasier (TU Munich) and Giuseppe Savaré (Bocconi University, Milano).