Séminaire d'analyse

UNIVERSITÉ LAVAL

Vendredi 21 Novembre 2014
14h00

Conférencier

Robert McCann (University of Toronto)

Titre

Optimal transport : old and new

Résumé

The Monge-Kantorovich optimal transportation problem is to pair producers with consumers so as to minimize a given transportation cost. When the producers and consumers are modeled by probability densities on two given manifolds or subdomains, it is interesting to try to understand the analytical, geometric and topological features of the optimal pairing as a subset of the product manifold. This subset may or may not be the graph of a map.

This lecture describes recent developments concerning Monge's original version of this problem, and contrasts them with a capacity constrained variant in which a bound is imposed on the quantity transported between each given producer and consumer. In particular, we give a new perspective on Kantorovich's linear programming duality and expose how more subtle questions relating the structure of the solution are intimately connected to the differential topology and geometry of the chosen transportation cost.