OPTIMAL NETWORKS IN MASS TRANSPORTATION PROBLEMS

Giuseppe Buttazzo
(buttazzo@dm.unipi.it, http://cvgmt.sns.it)

Dipartimento di Matematica
Via Buonarroti, 2
56127 PISA (Italy)

Mass transportation problems deal with a metric space (X, d) and two probability measures f^+ and f^- on X. The cost functional

$$F(d) = \inf\left\{ \int_{X\times X} d(x,y)\,d\gamma(x,y) \;:\; \gamma \text{ has marginals } f^+ \text{ and } f^- \right\}$$

can then be defined, and its value depends on the distance d we considered on X.

We give a model for the description of an urban transportation network and we consider the related optimization problem which consists in finding the design of the network which has the best transportation performances.