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Nota di contenuto	Introduction: The Models -- The Mathematical Models -- Traffic Plans -- The Structure of Optimal Traffic Plans -- Operations on Traffic Plans -- Traffic Plans and Distances between Measures -- The Tree Structure of Optimal Traffic Plans and their Approximation -- Interior and Boundary Regularity -- The Equivalence of Various Models -- Irrigability and Dimension -- The Landscape of an Optimal Pattern -- The Gilbert-Steiner Problem -- Dirac to Lebesgue Segment: A Case Study -- Application: Embedded Irrigation Networks -- Open Problems.
Sommario/riassunto	The transportation problem can be formalized as the problem of

finding the optimal way to transport a given measure into another with the same mass. In contrast to the Monge-Kantorovitch problem, recent approaches model the branched structure of such supply networks as minima of an energy functional whose essential feature is to favour wide roads. Such a branched structure is observable in ground transportation networks, in draining and irrigation systems, in electrical power supply systems and in natural counterparts such as blood vessels or the branches of trees. These lectures provide mathematical proof of several existence, structure and regularity properties empirically observed in transportation networks. The link with previous discrete physical models of irrigation and erosion models in geomorphology and with discrete telecommunication and transportation models is discussed. It will be mathematically proven that the majority fit in the simple model sketched in this volume.