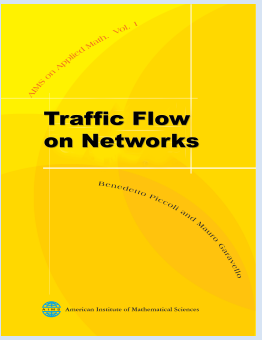
AIMS Book

Traffic Flow on Networks

By Mauro Garavello and Benedetto Piccoli

ISBN-10: 1601330006; ISBN-13: 978-1-60133-000-0

Introduction



This unique is devoted to macroscopic models for traffic on a network, with possible applications to car traffic, telecommunications and supply-chains. Starting from classical and recent fluid-dynamic approaches to describe car traffic on a single road, the book develops an original theory to deal with arbitrarily complex networks. Results are illustrated with numerical simulations and may be used in real-time traffic control. The book is easy reading and is suitable for teaching.

The exponentially increasing number of circulating cars in modern cities renders the problem of traffic control of paramount importance,affecting productivity, pollution, life-style etc. The solution of the such problems has thus great socio-economical impact.

The model can be used to study the evolution of network congestions as consequence of sudden changes or special situations as accidents, demonstrations, floods etc. It permits an accurate description of queues formation and evolution on the network and, as a consequence, an accurate evaluation of travelling times. Moreover, efficient numerical schemes are obtained, real urban networks are well described and tests with real data are convenient and easy to implement.

Reviews

- This book has no competitors in this field and will certainly be welcome by the applied math community.
- The choice of topics covered in the book and its overall presentation are very good.
- This is a quite nice manuscript, mathematically oriented, but strongly motivated by very applied questions. It is very clearly written.

Contents

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