

1. Record Nr.	UNINA9910564680703321
Autore	Bayen Alexandre M
Titolo	Control problems for conservation laws with traffic applications : modeling, analysis, and numerical methods // Alexandre Bayen [et al.]
Pubbl/distr/stampa	Cham, : Springer International Publishing AG, 2022
ISBN	3-030-93015-7
Descrizione fisica	1 online resource (xvii, 227 pages) : illustrations (some colour)
Collana	Progress in nonlinear differential equations and their applications ; v.99
Altri autori (Persone)	Delle MonacheMaria Laura GaravelloMauro GoatinPaola PiccoliBenedetto <1968->
Soggetti	Conservation laws (Mathematics) Lleis de conservació (Matemàtica) Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Introduction Boundary Control Decentralized Control Distributed Control Lagrangian Control Hamilton-Jacobi Equations Appendix A: Balance Laws with Boundary Conservation Laws on Networks
Sommario/riassunto	Conservation and balance laws on networks have been the subject of much research interest given their wide range of applications to real-world processes, particularly traffic flow. This open access monograph is the first to investigate different types of control problems for conservation laws that arise in the modeling of vehicular traffic. Four types of control problems are discussed - boundary, decentralized, distributed, and Lagrangian control - corresponding to, respectively, entrance points and tolls, traffic signals at junctions, variable speed limits, and the use of autonomy and communication. Because conservation laws are strictly connected to Hamilton-Jacobi equations, control of the latter is also considered. An appendix reviewing the general theory of initial-boundary value problems for balance laws is included, as well as an appendix illustrating the main concepts in the theory of conservation laws on networks.

