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	Titolo	Flows of Non-Smooth Vector Fields and Degenerate Elliptic Equations : With Applications to the Vlasov-Poisson and Semigeostrophic Systems / / by Maria Colombo
	Pubbl/distr/stampa	Pisa : , : Scuola Normale Superiore : , : Imprint : Edizioni della Normale, , 2017
	ISBN	88-7642-607-8
	Edizione	[1st ed. 2017.]
	Descrizione fisica	1 online resource (Approx. 250 p.)
	Collana	Theses (Scuola Normale Superiore), , 2239-1460 ; ; 22
	Disciplina	515.353
	Soggetti	Differential equations, Partial
		Calculus of variations
		Geophysics
		Partial Differential Equations
		Calculus of Variations and Optimal Control; Optimization
		Geophysics and Environmental Physics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di bibliografia	Includes bibliographical references.
	Nota di contenuto	An overview on flows of vector fields and on optimal transport -- Maximal regular flows for non-smooth vector fields -- Main properties of maximal regular flows and analysis of blow-up -- Lagrangian structure of transport equations -- The continuity equation with an integrable damping term -- Regularity results for very degenerate elliptic equations -- An excess-decay result for a class of degenerate elliptic equations -- The Vlasov-Poisson system -- The semigeostrophic system. .
	Sommario/riassunto	The first part of the book is devoted to the transport equation for a given vector field, exploiting the lagrangian structure of solutions. It also treats the regularity of solutions of some degenerate elliptic equations, which appear in the eulerian counterpart of some transport models with congestion. The second part of the book deals with the lagrangian structure of solutions of the Vlasov-Poisson system, which describes the evolution of a system of particles under the self-induced gravitational/electrostatic field, and the existence of solutions of the

semigeostrophic system, used in meteorology to describe the motion
of large-scale oceanic/atmospheric flows.