1. Record Nr. UNINA9910483367603321

Autore	Arnold V. I (Vladimir Igorevich), <1937-2010, >
Titolo	Topological Methods in Hydrodynamics / / by Vladimir I. Arnold, Boris A. Khesin
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	3-030-74278-4
Edizione	[2nd ed. 2021.]
Descrizione fisica	1 online resource (XX, 455 p. 79 illus.)
Collana	Applied Mathematical Sciences, , 2196-968X ; ; 125
Disciplina	532.5
Soggetti	Mathematics Fluid mechanics System theory Computational intelligence Statistical physics Dynamics General Mathematics Engineering Fluid Dynamics Complex Systems Computational Intelligence Statistical Physics Dynamical Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Group and Hamiltonian Structures of Fluid Dynamics -- Topology of Steady Fluid Flows -- Topological Properties of Magnetic and Vorticity Fields -- Differential Geometry of Diffeomorphism Groups -- Kinematic Fast Dynamo Problems -- Dynamical Systems with Hydrodynamical Background.
Sommario/riassunto	First published in 1998 this unique monograph treats topological, group-theoretic, and geometric problems of ideal hydrodynamics and magneto-hydrodynamics from a unified point of view. It describes the necessary preliminary notions both in hydrodynamics and pure mathematics with numerous examples and figures. This book, now

accepted as one of the main references in the field, is accessible to graduates as well as pure and applied mathematicians working in hydrodynamics, Lie groups, dynamical systems, and differential geometry. The updated second edition also contains a survey of recent developments in this now-flourishing field of topological and geometric hydrodynamics.