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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- Contents -- The equations of fluid mechanics -- Analysis tools -- Sobolev spaces -- Steady Stokes equations -- Navier-Stokes equations for homogeneous fluids -- Nonhomogeneous fluids -- Boundary conditions modeling -- Classic differential operators -- Thermodynamics supplement -- References -- Index.
Sommario/riassunto	The objective of this self-contained book is two-fold. First, the reader is introduced to the modelling and mathematical analysis used in fluid mechanics, especially concerning the Navier-Stokes equations which is the basic model for the flow of incompressible viscous fluids. Authors introduce mathematical tools so that the reader is able to use them for studying many other kinds of partial differential equations, in particular nonlinear evolution problems. The background needed are basic results in calculus, integration, and functional analysis. Some sections certainly contain more advanced topics than others. Nevertheless, the authors' aim is that graduate or PhD students, as well as researchers who are not specialized in nonlinear analysis or in mathematical fluid mechanics, can find a detailed introduction to this subject.