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Titolo	Fluid Dynamics : Fundamentals and Applications / / by Guido Visconti, Paolo Ruggieri
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Descrizione fisica	1 online resource (XVI, 326 p. 126 illus., 1 illus. in color.)
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Livello bibliografico	Monografia
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Nota di contenuto	Chapter 1. Fundamentals 1 -- Chapter 2. Fundamentals 2 -- Chapter 3. Fundamentals 3 -- Chapter 4. Aerodynamics -- Chapter 5. Waves -- Chapter 6. Instabilities -- Chapter 7. Chaos and Turbulence: an introduction -- Chapter 8. Some magneto hydrodynamics.
Sommario/riassunto	This introductory book addresses a broad range of classical Fluid Dynamics topics, interesting applications, and related problems in everyday life. The geophysical and astrophysical applications discussed concern e.g. the shape and internal structure of the Earth and stars, the dynamics of the atmosphere and ocean, hydrodynamic instabilities, and the different kinds of waves that can be found in the atmosphere, ocean and solid Earth. Non-linear waves (solitons) are also mentioned. In turn, the book explores problems from everyday life, including the motion of golf balls, life at low Reynolds numbers, the physics of sailing, and the aerodynamics of airplanes and Grand Prix cars. No book on this topic would be complete without a look at chaos and

turbulence; here the problems span from Gaussian plumes to chaotic dynamos, to stochastic climate modeling. Advances in fluid dynamics have produced a wealth of numerical methods and techniques, which are used in many of the applications. Given its structure, the book can be used both for an introductory course to fluid dynamics and as preparation for more advanced problems typical of graduate-level courses.