1. Record Nr. UNINA9910592989903321

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Titolo	Level Set Methods for Fluid-Structure Interaction / / by Georges-Henri Cottet, Emmanuel Maitre, Thomas Milcent
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	3-031-08659-7
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (203 pages)
Collana	Applied Mathematical Sciences, , 2196-968X ; ; 210
Disciplina	624.171
Soggetti	Mathematical models Continuum mechanics Numerical analysis Mathematics - Data processing Mathematical Modeling and Industrial Mathematics Continuum Mechanics Numerical Analysis Computational Science and Engineering Models matemàtics Mecànica dels medis continus Anàlisi numèrica Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1. Level Set methods and Lagrangian interfaces -- 2. Mathematical tools for continuum mechanics -- 3. Interaction of an incompressible fluid with an elastic membrane -- 4. Immersed bodies : the case of elastic bodies -- 5. Immersed bodies : the case of rigid bodies -- 6. Interaction between bodies by the Level Set method -- 7. Appendix -- 8. References. .
Sommario/riassunto	This monograph is devoted to the study of Eulerian models for fluid-structure interaction from the original point of view of level set methods. In the last 15 years, Eulerian models have become popular tools for studying fluid-structure interaction problems. One major

advantage compared to more conventional methods such as ALE methods is that they allow the use of a single grid and a single discretization method for the different media. Level set methods in addition provide a general framework to follow the fluid-solid interfaces, to represent the elastic stresses of solids, and to model the contact forces between solids. This book offers a combination of mathematical modeling, aspects of numerical analysis, elementary codes and numerical illustrations, providing the reader with insights into the applications and performance of these models. Assuming background at the level of a Master’s degree, Level Set Methods for Fluid-Structure Interaction provides researchers in the fields of numerical analysis of PDEs, theoretical and computational mechanics with a basic reference on the topic. Its pedagogical style and organization make it particularly suitable for graduate students and young researchers.