1. Record Nr. UNINA9910688397003321

Titolo	Advanced Computational Fluid Dynamics for Emerging Engineering Processes : Eulerian vs. Lagrangian / / edited by Albert S. Kim
Pubbl/distr/stampa	London : , : IntechOpen, , 2019 ©2019
Descrizione fisica	1 online resource (xii, 172 pages) : illustrations
Disciplina	620.106
Soggetti	Fluid mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Sommario/riassunto	As researchers deal with processes and phenomena that are geometrically complex and phenomenologically coupled the demand for high-performance computational fluid dynamics (CFD) increases continuously. The intrinsic nature of coupled irreversibility requires computational tools that can provide physically meaningful results within a reasonable time. This book collects the state-of-the-art CFD research activities and future R&D directions of advanced fluid dynamics. Topics covered include in-depth fundamentals of the Navier-Stokes equation, advanced multi-phase fluid flow, and coupling algorithms of computational fluid and particle dynamics. In the near future, true multi-physics and multi-scale simulation tools must be developed by combining micro-hydrodynamics, fluid dynamics, and chemical reactions within an umbrella of irreversible statistical physics.