1. Record Nr. UNINA9910790468503321

Titolo	Computational fluid dynamics for engineers [[electronic resource] /] / Bengt Andersson ... [et al.]
Pubbl/distr/stampa	Cambridge [England], : Cambridge University Press, 2012
ISBN	1-139-19986-2 1-107-23101-9 1-280-48463-2 9786613579614 1-139-20579-X 1-139-20360-6 1-139-20658-3 1-139-20219-7 1-139-20500-5 1-139-09359-2
Descrizione fisica	xi, 189 p. : ill
Altri autori (Persone)	AnderssonBengt <1947 June 15->
Disciplina	532/.05
Soggetti	Fluid dynamics Engineering mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: 1. Introduction; 2. Modelling; 3. Numerical aspects of CFD; 4. Turbulent flow modelling; 5. Turbulent mixing and chemical reactions; 6. Multiphase flow modelling; 7. Best practice guidelines; 8. References and further reading; Appendix.
Sommario/riassunto	"Computational fluid dynamics, CFD, has become an indispensable tool for many engineers. This book gives an introduction to CFD simulations of turbulence, mixing, reaction, combustion and multiphase flows. The emphasis on understanding the physics of these flows helps the engineer to select appropriate models to obtain reliable simulations. Besides presenting the equations involved, the basics and limitations of the models are explained and discussed. The book combined with tutorials, project and power-point lecture notes (all available for

download) forms a complete course. The reader is given hands-on experience of drawing, meshing and simulation. The tutorials cover flow and reactions inside a porous catalyst, combustion in turbulent non-premixed flow, and multiphase simulation of evaporation spray respectively. The project deals with design of an industrial-scale selective catalytic reduction process and allows the reader to explore various design improvements and apply best practice guidelines in the CFD simulations"--