Record Nr. UNINA9910139056503321 Autore Chinesta Francisco Titolo Natural element method for the simulation of structures and processes [[electronic resource] /] / Francisco Chinesta ... [et al.] Pubbl/distr/stampa London, : ISTE Hoboken, N.J.,: Wiley, 2011 **ISBN** 1-118-61690-1 1-299-31421-X 1-118-61668-5 Descrizione fisica 1 online resource (255 p.) Collana ISTE MAT003000 Classificazione Altri autori (Persone) ChinestaFrancisco 624.1/7015118 Disciplina 624.17015118 Soggetti Materials - Mechanical properties - Mathematical models Numerical analysis Numbers, Natural Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references (p. [227]-238) and index. Nota di contenuto Cover: Natural Element Method for the Simulation of Structures and Processes; Title Page; Copyright Page; Table of Contents; Foreword; Acknowledgements; Chapter 1. Introduction; 1.1. SPH method; 1.2. RKPM method: 1.2.1. Conditions of reproduction: 1.2.2. Correction of the kernel; 1.2.3. Discrete form of the approximation; 1.3. MLS based approximations; 1.4. Final note; Chapter 2. Basics of the Natural Element Method; 2.1. Introduction; 2.2. Natural neighbor Galerkin methods; 2.2.1. Interpolation of natural neighbors; 2.2.2. Discretization 2.2.3. Properties of the interpolant based on natural neighbors2.3. Exact imposition of the essential boundary conditions; 2.3.1. Introduction to alpha shapes; 2.3.2. CNEM approaches; 2.4. Mixed approximations of natural neighbor type; 2.4.1. Considering the restriction of incompressibility; 2.4.2. Mixed approximations in the

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## Sommario/riassunto

"This book presents a recent state of the art on the foundations and applications of the meshless natural element method in computational mechanics, including structural mechanics and material forming processes involving solids and Newtonian and non-Newtonian fluids"--