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   **Autore**              Kim Gi-Heon

   **Titolo**              Computer-aided engineering of automotive batteries [[electronic resource] /] / Gi-Heon Kim, Kandler Smith, Ahmad Pesaran

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   **Altri autori (Persone)** SmithKandler
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| 2. Record Nr. | UNINA9910814532103321 |
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| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Title Page; Copyright; Contents; Series Preface; Preface; Chapter 1 Introduction; 1.1 Introduction; 1.2 An Enriched Finite Element Method; 1.3 A Review on X-FEM: Development and Applications; 1.3.1 CouplingX-FEM with the Level-Set Method; 1.3.2 Linear Elastic Fracture Mechanics (LEFM); 1.3.3 Cohesive Fracture Mechanics; 1.3.4 Composite Materials and Material In homogeneities; 1.3.5 Plasticity, Damage, and Fatigue Problems; 1.3.6 Shear Band Localization; 1.3.7 Fluid-Structure Interaction; 1.3.8 Fluid Flow in Fractured Porous Media; 1.3.9 Fluid Flow and Fluid Mechanics Problems<br>1.3.10 Phase Transition and Solidification 1.3.11 Thermal and Thermo-Mechanical Problems; 1.3.12 Plates and Shells; 1.3.13 Contact Problems; 1.3.14 Topology Optimization; 1.3.15 Piezoelectric and Magneto-Electroelastic Problems; 1.3.16 Multi-Scale Modeling; Chapter 2 Extended Finite Element Formulation; 2.1 Introduction; 2.2 The Partition of Unity Finite Element Method; 2.3 The Enrichment of Approximation Space; 2.3.1 Intrinsic Enrichment; 2.3.2 Extrinsic Enrichment; 2.4 The Basis of X-FEM Approximation; 2.4.1 The Signed Distance Function; 2.4.2 The Heaviside Function; 2.5 Blending Elements 2.6 Governing Equation of a Body with Discontinuity 2.6.1 The |

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| Sommario/riassunto | Introduces the theory and applications of the extended finite element method (XFEM) in the linear and nonlinear problems of continua, structures and geomechanics. Explores the concept of partition of unity, various enrichment functions, and fundamentals of XFEM formulation. Covers numerous applications of XFEM including fracture mechanics, large deformation, plasticity, multiphase flow, hydraulic fracturing and contact problems. Accompanied by a website hosting source code and examples. |