

1. Record Nr.	UNINA9910338249103321
Titolo	Meshfree Methods for Partial Differential Equations IX // edited by Michael Griebel, Marc Alexander Schweitzer
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-15119-0
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (VIII, 206 p. 64 illus., 30 illus. in color.)
Collana	Lecture Notes in Computational Science and Engineering, , 1439-7358 ; ; 129
Disciplina	518 515.353
Soggetti	Numerical analysis Partial differential equations Computer mathematics Algorithms Applied mathematics Engineering mathematics Numerical Analysis Partial Differential Equations Computational Science and Engineering Mathematical and Computational Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Travis B. Fillmore, Varun Gupta and C. Armando Duarte: Preconditioned Conjugate Gradient Solvers for the Generalized Finite Element Method -- Csaba Gaspar: A Fast and Stable Multi-Level Solution Technique for the Method of Fundamental Solutions -- J. H. Gosse and E. J. Sharp: Explicit Margin of Safety Assessment of Composite Structure -- Rudiger Kempf, Holger Wendland and Christian Rieger: Kernel-based Reconstructions for Parametric PDEs -- Jorg Kuhnert, Isabel Michel and Reiner Mack: Fluid Structure Interaction (FSI) in the MESHFREE Finite Pointset Method (FPM): Theory and Applications -- Fabian Nick, Hans-Joachim Plum and Jörg Kuhnert: Parallel Detection of Subsystems in Linear Subsystems Arising in the MESHFREE Finite Pointset Method --

Andriy Sokolov, Oleg Davydov and Stefan Turek: Numerical Study of the RBF-FD Level Set Based Method for Partial Differential Equations on Evolving-in-Time Surfaces -- Modesar Shakoor, Jiaying Gao, Zeliang Liu, and Wing Kam Liu: A Data-Driven Multiscale Theory For Modeling Damage and Fracture of Composite Materials -- C. T. Wu, Youcai Wu, Wei Hu, Xiaofei Pan: Modeling the Friction Drilling Process Using a Thermo-Mechanical Coupled Smoothed Particle Galerkin Method -- Matthias Birner and Marc Alexander Schweitzer: Global-Local Enrichments in PUMA -- Clelia Albrecht, Constanze Klaar and Marc Alexander Schweitzer: Stable and Efficient Quantum Mechanical Calculations with PUMA on Triclinic Lattices.

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Sommario/riassunto

This volume collects selected papers presented at the Ninth International Workshop on Meshfree Methods held in Bonn, Germany in September 2017. They address various aspects of this very active research field and cover topics from applied mathematics, physics and engineering. The numerical treatment of partial differential equations with meshfree discretization techniques has been a very active research area in recent years. While the fundamental theory of meshfree methods has been developed and considerable advances of the various methods have been made, many challenges in the mathematical analysis and practical implementation of meshfree methods remain. This symposium aims to promote collaboration among engineers, mathematicians, and computer scientists and industrial researchers to address the development, mathematical analysis, and application of meshfree and particle methods especially to multiscale phenomena. It continues the 2-year-cycled Workshops on Meshfree Methods for Partial Differential Equations.

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