

1. Record Nr.	UNINA9910458439803321
Titolo	Advances in meshfree and x-fem methods [[electronic resource]] : proceedings of the 1 st Asian Workshop on Meshfree Methods, Singapore, 16-18 December, 2002 / / editors, G.R. Liu
Pubbl/distr/stampa	Singapore, : World Scientific, 2003
ISBN	981-277-861-6
Descrizione fisica	1 online resource (274 p.)
Altri autori (Persone)	LiuG. R (Gui-Rong)
Disciplina	518.6
Soggetti	Meshfree methods (Numerical analysis) Numerical analysis Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Section 1. Keynote paper. 1.1. Seamless and parallel computing by using free mesh method: a kind of meshless technique / G. Yagawa -- Section 2. Meshfree formulations. 2.1. Analysis of 3D solid with complicated geometry using finite cover method / K. Suzuki and H. Ohtsubo -- 2.2. A meshless method using radial basis functions for solving wave equations / C.S. Chen, Jichun Li and D.W. Pepper -- 2.3. Meshless computational method by using radial basis functions / Benny Y.C. Hon -- 2.4. Recent advances in the method of fundamental solutions / A. Karageorghis, G. Fairweather and P.A. Martin -- 2.5. A study on the patch test of point interpolation methods / Y.T. Gu -- 2.6. A comparison between radial point interpolation method (RPIM) and Kriging based meshfree method / G.R. Liu ... [et al.] -- 2.7. Radial basis point interpolation collocation method for 2-D solid problem / Xin Liu ... [et al.] -- Section 3. Meshfree methods for smart materials/structures. 3.1. Point interpolation mesh free method for static and frequency analysis of two-dimensional piezoelectric structures / K.Y Dai, G.R. Liu and K.M. Lim -- 3.2. A hybrid meshless-differential order reduction (HM-DOR) method for deformation control of smart circular plate by sensors/actuators / J.Q. Cheng ... [et al.] -- Section 4. Meshfree methods for fracture analysis. 4.1. Application of 3D free mesh method to fracture analysis of concrete / Hitoshi

Matsubara ... [et al.] -- 4.2. Meshless analysis integrate system for structural and fracture mechanics analysis / Seiya Hagihara ... [et al.] -- 4.3. Application of 2-dimensional crack propagation problem using free mesh method / J. Imasato and Y. Sakai -- Section 5. Meshfree methods for membranes, plates & shells. 5.1. Analysis of membrane structures with large sliding cable using mixed displacement formulation and EFGM / Hirohisa Noguchi, Yoshitomo Sato and Tetsuya Kawashima -- 5.2. The effects of the enforcement of compatibility in the radial point interpolation method for analyzing Mindlin plates / X.L. Chen, G.R. Liu and S.P. Lim -- 5.3. A mesh free method for dynamic analysis of thin shells / L. Liu and V.B.C. Tan -- 5.4. A conforming point interpolation method for analyzing spatial thick shell structures / L. Liu ... [et al.].

Section 6. Meshfree methods for soil. 6.1. Characteristics of localized behavior of saturated soil with pore water via mesh-free method / S. Arimoto, A. Murakami -- 6.2. Radial point interpolation method for interface problems / J.G. Wang, T. Nogami and Md. Rezaul Karim -- Section 7. Meshfree methods for CFD. 7.1. Application of free mesh method to viscoplastic flow analysis of fresh concrete / Jun Tomiyama ... [et al.] -- 7.2. A meshless local radial point interpolation method (LRPIM) for fluid flow problems / Y.L. Wu -- 7.3. Application of meshless point interpolation method with matrix triangularization algorithm to natural convection / G.R. Liu and Y.L. Wu -- 7.4. The solution for convection-diffusion equations using the quasi-interpolation scheme with local polynomial reproduction based on moving least squares / Xin Liu ... [et al.] -- Section 8. Boundary meshfree methods. 8.1. Regular hybrid boundary node method / J.M. Zhang and Z.H. Yao -- 8.2. Radial boundary node method for elastic problem / H. Xie, T. Nogami and J.G. Wang -- 8.3. A hybrid boundary point interpolation method (HBPIM) and its coupling with EFG method / Y.T. Gu and G.R. Lin -- Section 9. Coding, error estimation, parallisation. 9.1. Error regulation in EFGM adaptive scheme / W. Kanok-Nukulchai and X.P. Yin -- 9.2. Object oriented development of FMM3D: foundation software for parallel 3D free mesh method / Yutaka Nakama ... [et al.] -- 9.3. An approach for nodal selection in MFree2D [symbol] / G.R. Liu, Edgar Frijters and Y.T. Gu -- Section 10. Meshfree particle methods. 10.1. Coupling meshfree particle method with molecular dynamics novel approach for multscale simulations / M.B. Liu, G.R. Liu and K.Y. Lam -- 10.2. Adaptive smoothed particle hydrodynamics with strength of materials, part I / G.L. Chin, K.Y. Lam and G.R. Liu -- 10.3. Adaptive smoothed particle hydrodynamics with strength of materials, part II / G.L. Chin, K.Y. Lam and G.R. Liu -- 10.4. Numerical simulation of perforation of concrete slabs by steel rods using SPH method / H.F. Qiang and S.C. Fan -- Section 11. X-FEM. 11.1. Three dimensional crack growth analysis using overlaying mesh method and X-FEM / S. Nakasumi, K. Suzuki and H. Ohtsubo -- 11.2. Buckling analysis of composite laminates with delaminations using X-FEM / T. Nagashima and H. Suemasu -- 11.3. Boundary condition enforcement in voxel-type FEM / T. Nagashima.

Sommario/riassunto

This book is a collection of the papers from the proceedings of the 1st Asian Workshop on Meshfree Methods held in conjunction with the 2nd International Conference on Structural Stability & Dynamics (ICSSD02) on 16-18 December 2002 in Singapore. It contains 36 articles covering most of the topics in the rapidly developing areas of meshfree methods and extended finite element methods (X-FEM). These topics include domain discretization, boundary discretization, combined domain/boundary discretization, meshfree particle methods, collocation methods, X-FEM, etc. Papers on issues related to

implementation and coding of meshfree methods are also presented. The areas of applications of meshfree methods include solving general partial differential equations, the mechanics of solids and structures, smart material/structures, soil-structures, fracture mechanics, fluid dynamics, impact, penetration, micro-fluidics, etc. In addition, techniques for field variable interpolation, such as the moving least squares (MLS) approximation, the point interpolation method (PIM), and radial PIM are reported.
