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| 1. | Record Nr. | UNINA9910257430303321 |
| | Titolo | Advances in the Free-Lagrange Method [[electronic resource] ] : Including Contributions on Adaptive Gridding and the Smooth Particle Hydrodynamics Method / / edited by Harold E. Trease, Martin F. Fritts, W. Patrick Crowley |
| | Pubbl/distr/stampa | Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 1991 |
| | ISBN | 3-540-46608-8 |
| | Edizione | [1st ed. 1991.] |
| | Descrizione fisica | 1 online resource (XI, 327 p. 45 illus., 8 illus. in color.) |
| | Collana | Lecture Notes in Physics, , 0075-8450 ; ; 395 |
| | Disciplina | 532/.5 |
| | Soggetti | Physics<br>Fluids<br>Mathematical Methods in Physics<br>Numerical and Computational Physics, Simulation<br>Fluid- and Aerodynamics |
| | Lingua di pubblicazione | Inglese |
| | Formato | Materiale a stampa |
| | Livello bibliografico | Monografia |
| | Note generali | Bibliographic Level Mode of Issuance: Monograph |
| | Nota di contenuto | Exact conservation of energy and momentum in staggered-grid hydrodynamics with arbitrary connectivity -- Recent modifications in the HOBO mesh -- TRIX: A free-lagrangian hydrocode -- Solution of Euler's equations on adaptive grids using a fast unstructured grid second order Godunov solver (FUGGS) -- Numerical simulation of time-dependent 3-D flows using adaptive unstructured grids -- An explicit-implicit solution of the hydrodynamic and radiation equations -- Electromagnetic particle codes on unstructured grids -- Asynchronous 3D free lagrange code -- Roundtable -- Unstructured mesh relaxation -- Design systems for adaptive general connectivity meshes: Increasing total efficiency for computational physics applications -- Electromagnetic scattering calculations using a finite—element solver for the Maxwell equations -- Delaunay tetrahedralization in a 3-D free-lagrangian multimaterial code -- 3-D reconnection and fluxing algorithms -- Parallel nearest neighbor calculations -- Visualization of 3-D free-Lagrange calculational data -- Roundtable -- The free-Lagrange method on the connection machine -- Thermal diffusion in |

the X-7 three-dimensional code -- An even-parity/odd-parity formulation for deterministic transport calculations on massively parallel computers (U) -- Deterministic transport on an arbitrarily connected grid -- Roundtable -- An evaluation of smoothed particle hydrodynamics -- Smooth particle hydrodynamics -- Smooth particle hydrodynamics with strength of materials -- An angular weighting approach for calculating gradients and divergences -- Free-Lagrange advection slide lines -- Comparisons between the cell-centered and staggered mesh Lagrangian hydrodynamics -- Vorticity errors in multidimensional Lagrangian codes -- Deterministic vortex methods for the incompressible Navier-Stokes equations -- Roundtable.

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| Sommario/riassunto | The contributions in this volume focus on the use of general connectivity (unstructured) adaptive meshes for Lagrangian calculations but contain a substantial amount of material on Euler and arbitrary Lagrange-Euler techniques as well. Contributions on the smooth particle hydrodynamics method and on deterministic vortex methods broaden the scope of the material and allow comparisons of different, though allied, techniques to be made. The format of the conference was designedto optimize the interaction among the attendees. An edited version of roundtable discussions is included in these proceedings. |