



High Performance Computing in Science and Engineering '01

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Book Condition: New. Publisher/Verlag: Springer, Berlin | Transactions of the High Performance Computing Center Stuttgart (HLRS) 2001 | This volume summarizes the state of the art in supercomputing, with special emphasis on the industrial relevance of the presented results and methods. The book showcases an innovative usage of state-of-the-art modeling, novel numerical algorithms and the use of leading-edge high-performance computing systems in a GRID-like environment. | Physics.- Simulation of Dislocations in Icosahedral Quasicrystals with IMD.- Buoyancy Driven Convection in Rotating Spherical Shells and Its Dynamo Action.- Finite-Difference Simulations of Seismic Wavefields in Isotropic and Anisotropic Earth Models.- Collisional Dynamics of Black Holes, Star Clusters and Galactic Nuclei.- The Computation of Highly Excited Hyperbolic 3D-Eigenmodes and Their Application to Quantum Chaos and Cosmology.- Propagation of Herbig-Haro Jets Through Inhomogeneous Molecular Clouds.- Phase Transitions and Quantum Effects in Systems with Reduced Geometry.- Probing Hot Quantum Chromodynamics with a Complex Chemical Potential.- Solid State Physics.- Destruction of Superfluid and Long Range Order by Impurities in Two Dimensional Systems.- Density-Matrix Algorithm for Phonon Hilbert Space Reduction in the Numerical Diagonalization of Quantum Many-Body Systems.- Single Hole Dynamics in Correlated Insulators.- Impurities in a Hubbard-chain.- Band to Mott Insulator Transition in the Ionic Hubbard Model.-...

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