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Emotional Body Language during Human Walking -- Fei Gao and Richard W. Longman: On Quadratic Programming Based Iterative Learning Control for Systems with Actuator Saturation Constraints -- Michael Griebel and Alexander Hullmann: A sparse grid based generative topographic mapping for the dimensionality reduction of high-dimensional data -- Markus Hansen, Claudia Schillings, and Christoph Schwab: Sparse Approximation Algorithms for High Dimensional Parametric Initial Value Problems -- Khai-Long Ho Hoang, Katja Mombaur, and Sebastian I. Wolf: Investigating Capturability in Dynamic Human Locomotion using Multi-Body Dynamics and Optimal Control -- Vitalii Yu. Kapitan and Konstantin V. Nefedev: High Performance Calculation of Magnetic Properties and Simulation of Nonequilibrium Phenomena in Nano_Ims -- Galina Kurina: Inverse Problem of the Calculus of Variations for Second Order Differential Equations with Deviating Arguments -- Ping Lin, Minh Q. Phan, and Stephen A. Ketcham: State-Space Model and Kalman Filter Gain Identification by a Superspace Method -- Vu Thai Luan and Alexander Ostermann: Stiff Order Conditions for Exponential Runge{Kutta Methods of Order Five -- Andrea Manzoni, Toni Lassila, Alfio Quarteroni, and Gianluigi Rozza: A reduced-order strategy for solving inverse Bayesian shape identification problems in physiological flows -- Katja Mombaur: A mathematical study of sprinting on artificial legs -- Sabine Pickenhain: Hilbert Space Treatment of Optimal Control Problems with Infinite Horizon -- César de Prada, Smaranda Cristea, Rogelio Mazaeda, Luis G. Palacín: Optimum operation of a beer filltration process -- Nguyen Quang-Hung, Nam Thoai, Nguyen Thanh Son, and Duy-Khanh Le: Energy-Aware Lease Scheduling in Virtualized Data Centers -- Alexander Schubert, Katja Mombaur, and Joachim Funke: Mathematical Models of Perception and Generation of Art Works by Dynamic Motions -- Keh-Ming Shyue: An Eulerian interface-sharpening algorithm for compressible gas dynamics -- Tobias Steinle, Jadran Vrabec, and Andrea Walther: Numerical Simulation of the Damping Behavior of Particle-filled Hollow Spheres -- Hiroshi Umeo: FSSP Algorithms for Square and Rectangular Arrays -- Krzysztof Walkowiak and Jacek Rak: Optimization Issues in Distributed Computing Systems Design.

Sommario/riassunto

This proceedings volume gathers a selection of papers presented at the Fifth International Conference on High Performance Scientific Computing, which took place in Hanoi on March 5-9, 2012. The conference was organized by the Institute of Mathematics of the Vietnam Academy of Science and Technology (VAST), the Interdisciplinary Center for Scientific Computing (IWR) of Heidelberg University, Ho Chi Minh City University of Technology, and the Vietnam Institute for Advanced Study in Mathematics. The contributions cover the broad interdisciplinary spectrum of scientific computing and present recent advances in theory, development of methods, and practical applications. Subjects covered include mathematical modeling; numerical simulation; methods for optimization and control; parallel computing; software development; and applications of scientific computing in physics, mechanics and biomechanics, material science, hydrology, chemistry, biology, biotechnology, medicine, sports, psychology, transport, logistics, communication networks, scheduling, industry, business and finance.
