

## Table of Contents

A Non-repetitive Logic for Verification of Dynamic Memory with Explicit Heap Conjunction and Disjunction <i>Rene Haberland and Kirill Krinkin</i>	1
A Cell-Centered Lagrangian Method Based on Characteristics Theory For Numerically Simulating Condensed Explosive Detonation <i>Ming Yu and Zhibo Ma</i>	10
Reliability Assessment Based on Modelling and Simulations <i>Zhibo Ma and Ming Yu</i>	14
On the Implementation of Novel Velocity-based 3D Beam <i>Eva Zupan and Dejan Zupan</i>	17
An Algorithm for Expensive Optimization Problems <i>Yoel Tennne</i>	23
Parallel Program Complex “Express-3D” for 3D Flows Simulation on Hybrid Computer Systems <i>Alexander A. Davydov and Evgeny V. Shilnikov</i>	29
Mathematical Modeling of Water Purification Process of Iron Containing Impurities <i>Tatiana Kudryashova and Sergey Polyakov</i>	35
Optimum Angle-Cut of Collimator for Dense Objects in High-Energy Proton Radiography <i>Haibo Xu</i>	41
Study of Search Optimization Opportunities of Heuristic Algorithms for Solving Multi-Extremal Problems <i>Rudolf Neydorf, Ivan Chernogorov, Victor Polyakh, Orkhan Yarakhmedov, Yulia Goncharova, and Dean Vucinic</i>	44
Prototype Design of Computationally Efficient Digital Down Converter for 3G Applications <i>Rajesh Mehra</i>	52
A 3D Model Skeleton Correcting Algorithm using Templates of Inspecting Voxel Disconnection <i>Xun Jin and Jongweon Kim</i>	58
Non-rigid 3D Model Retrieval Based on Topological Approximation and Shape Diameter Function <i>Yiyu Hong and Jongweon Kim</i>	63
Robust Digital Image Watermarking Algorithm against RST Attacks using Self-patch Correlation <i>Ruichen Jin and JongWeon Kim</i>	68

Learning Method by Sharing Activity Logs in Multiagent Environment <i>Keinosuke Matsumoto, Takuya Gohara, and Naoki Mori</i>	71
Higher Education Cloud Computing in Zimbabwe: Towards Understanding Trends of Adoption <i>Maxmillan Giyane and Sheryl Buckley</i>	77
Fixed and Variable Sized Block Techniques for Sparse Matrix Vector Multiplication with General Matrix Structures <i>Javed Razzaq, Rudolf Berrendorf, Soenke Hack, Max Weierstall, and Florian Manuss</i>	84
A Genetic Algorithm solution for the Doctor Scheduling Problem <i>Abir Alharbi and Kholood AlQahtani</i>	91
Lyapunov's Inequality for a Fractional Differential Equation Subject to a Non-linear Integral Condition <i>Maysaa Al Qurashi and Lakhdar Ragoub</i>	98
Graph Coloring Applied to Medical Doctors Schedule <i>Fordous Toufic and Kholoud Khalid S Al-qahtani</i>	102