

## WSEAS TRANSACTIONS on MATHEMATICS

Issue 1, Volume 3, January 2004 ISSN 1109-2769 http://www.wseas.org

A Generalization of the Remainder in Multivariate Polynomial Interpolation Dana Simian	1
<b>Space Objective Functions for Systolic Arrays</b> Dragan M. Randjelovic	7
Lanczos Methods in Economic Models. Visual Representation and Computing Concepción González-Concepción and Peter Graves-Morris	13
Linear Systems and Half-Line Integral Representations Irwin W. Sandberg	19
DKA Method for Single Variable Holomorphic Functions Toshiaki Itoh	25
<b>Comparing Newton with ANN for Load Flow</b> Javier Bilbao, Eugenio Bravo	31
Higher Order Multivariate Automatic Differentiation and Validated Computation of Remainder Bounds Martin Berz and Kyoko Makino	37
<b>Quadratic Forms, Pythagorean Triples, and the Equation</b> Cordelia Aitkin, Thomas Colthurst, Kathryn Kollett, Steven Levandosky, Andrew Perry, Eugene Stern	45
<b>Iterative Learning Control with Input Parameterization of a Fedbatch Lactic Acid Fermentation Process</b> <i>Cherif Ben-Youssef, Julio Waissman, Gabriela Vázquez, Virgilio Lopez-M</i>	49
<b>Dominating Sets for Outerplanar Graphs</b> Val Pinciu	55
An Analysis of Average Search Cost of the External Hashing with Separate Chain Ningping Sun, Ryozo Nakamura, Hongbing Zhu, Akio Tada, Wenling Sun	59
<b>Some New Properties for Capacitated Lot Sizing Problem with Bounded Inventory and Stockouts</b> <i>Xiao Liu, Feng Chu, Chengbin Chu, Chengen Wang</i>	65
<b>Time distributed update of the NLMS Algorithm Coefficients for Acoustic Echo Cancellers</b> <i>Fotis Andritsopoulos, Yannis Mitsos, Christos Charopoulos, Gregory Doumenis, Constantin Papaodysseus</i>	71
Interval-valued Fuzzy Numbers and Concordance Analysis Approach to the Operational Organization Type Selection Ming-Miin Yu and Jing-Shing Yao	78
Towards The Formalization of Knowledge Representation	84

Omar López-Ortega, Joel Suárez-Cansino, Virgilio López-Morales

<b>Derivation of the Lattice Vehicular Model from the Boltzmann Transport Equation</b> Shih-Ching Lo	90
Measuring the Risk-Adjusted Efficiency of Taiwan Motor Transport Company Before and After Privatization Hsun-Jung Cho and Chih-Ku Fan	96
<b>The Joint Determination of Efficiency in Multi-Mode Bus Transit</b> Ming-Miin Yu and Chih-Ku Fan	102
<b>Application and Numerical Investigation of Wavelet Transform for Traffic Data Denoising</b> Shih-Ching Lo and Chih-Ku Fan	108
Quantum Mechanical Simulation for Ultra-thin High-k Gate Dielectrics Metal Oxide Semiconductor Field Effect Transistors Shih-Ching Lo, Yiming Li, and Jyun-Hwei Tsai	114
<b>Transient Analysis of Two-Dimensional Cylindrical Fin with Various Surface Heat Effects</b> <i>Kuang Yuan Kung and Shih-Ching Lo</i>	120
Generalized Output Regulation for a Class of Nonlinear Systems via the Robust Control Approach L. E. Ramos-Velasco, S. Celikovsky, V. Lopez-Morales and V. Kucera	126
<b>On the Approximation of the Auto Solid Angle for Solving Integral Equations</b> <i>Diana Rubio and Maria Ines Troparevsky</i>	132
Range Bounding with Taylor Models - Some Case Studies Kyoko Makino, Martin Berz and Youn-Kyung Kim	137
Integrating Nonlinear Heat Conduction Equation with Source Term Iryna Dmytruk	146
<b>Periodic Oscillators in Genetic Networks with Negative Feedback Loops</b> <i>Ruiqi Wang, Zhujun Jing, Luonan Chen</i>	150
<b>Constructive State-Affine Transformation of a Class of Nonlinear Systems</b> V. Lopez-Morales, A. Glumineau and L.E. Ramos-Velasco	157
<b>Robust Stability and Robust H<sup>∞</sup> control of 2-D Discrete Systems with Polytopic Uncertainty</b> Lixin Gao	163
Lineal Spline Approximation Algorithms for Solution of the Coefficient Inverse Problem for Nonlinear System of Ordinary Differential Equations and Applications in Neuroscience A. Grebennikov, J. F. Leyva	170
<b>Optimal control of Goursat systems in irregular domains</b> S. A. Belbas	176
Investigation of Delay System with Piece-Wise Right Side Arising in Radiotherapy Vasiliy Marzeniuk, Alexander Nakonechny	181
<b>Dynamic Modeling of a Vibratory Bowl Feeder</b> Diana Ioana Popescu	188
Partial Difference Equations and the Maximum Principle Jiri Gregor	192
<b>Transient Analysis of Two-Dimensional Rectangular Fin With Various Surface Heat Effects</b> <i>Kuang Yuan Kung</i>	198
Effects of Surface Roughness on Dynamic Squeeze Behavior of Partial Journal Bearings with Finite Width K. Y. Kung, C. H. Hsu, P. C. Chen, J.R. Lin	204

Modeling Error in the Two-Node Timoshenko Beam Finite Element João Elias Abdalla Filho, Michele Schunemann Pereira	210
<b>The Structure of Local Search Diversity</b> <i>Alexandre Linhares</i>	216
A Novel Method for Parameter Optimization in Two-Dimensional Dynamical Models Guanyu Wang	221
A Heuristic Dynamic Programming Algorithm for 2D Unconstrained Guillotine Cutting Xiang Song, Chengbin Chu, Yiyong Nie	230
New Optimization Approach in the Design of E-Shaped Patch Antenna Abbas Ali Lotfi Neyestanak, Farrokh Hojjat Kashani, Masood Khosroshahy	239
<b>On a New Extension of Wilcox's Method</b> <i>Irina Gladkova, Dmitry Chebanov</i>	244
Using Wavelets Based on B-splines for Calculation of the Hankel Transform Eugene Postnikov	250
<b>Normal Forms and Fatou-Bieberbach Domains</b> <i>Ralph Oberste-Vorth</i>	253
<b>Optimum Forming of Plates by Application of Boundary Forces</b> Abdolreza Joghataie and Amin Heidarpour	259
<b>On Solvability for Higher Order Parabolic Equations</b> <i>Martín López Morales</i>	265
<b>Time Series Analysis and Forecasting Techniques for Correlated Observations</b> <i>Raquel Voget, Alicia Tinnirello</i>	272
<b>Bayesian Segmentation and Motion Estimation in Video Sequences using a Markov-Potts Model</b> Patrice Brault and Ali Mohammad-Djafari	276
<b>Watermarking Oriented Video Modelling in the Wavelet Domain</b> <i>Mihai Mitrea, Francoise Preteux, Adriana Vlad</i>	282
<b>Modeling and Simulating Complexity for Discrete Graphic Markov Models: an Experimental Study</b> Elva Díaz, Eunice Ponce de León	288