

# Table of Contents

## Invited Presentations

The Algorithmization of Physics: Math Between Science and Engineering .....	1
<i>M. Rosenkranz</i>	
Finite Algebras and AI: From Matrix Semantics to Stochastic Local Search .....	8
<i>Z. Stachniak</i>	
Proof Search in Minimal Logic .....	15
<i>H. Schwichtenberg</i>	
Planning and Patching Proof .....	26
<i>A. Bundy</i>	

## Papers

A Paraconsistent Higher Order Logic .....	38
<i>J. Villadsen</i>	
Abstraction Within Partial Deduction for Linear Logic .....	52
<i>P. Küngas</i>	
A Decision Procedure for Equality Logic with Uninterpreted Functions ...	66
<i>O. Tveretina</i>	
Generic Hermitian Quantifier Elimination .....	80
<i>A. Dolzmann and L.A. Gilch</i>	
Extending Finite Model Searching with Congruence Closure Computation .....	94
<i>J. Zhang and H. Zhang</i>	
On the Combination of Congruence Closure and Completion .....	103
<i>C. Scharff and L. Bachmair</i>	
Combination of Nonlinear Terms in Interval Constraint Satisfaction Techniques .....	118
<i>L. Granvilliers and M. Ouabiba</i>	
Proving and Constraint Solving in Computational Origami .....	132
<i>T. Ida, D. Tepeanu, B. Buchberger, and J. Robu</i>	
An Evolutionary Local Search Method for Incremental Satisfiability .....	143
<i>M. El Bachir Menaï</i>	

Solving Equations Involving Sequence Variables and Sequence Functions ..	157
<i>T. Kutsia</i>	
Verified Computer Algebra in ACL2. Gröbner Bases Computation .....	171
<i>I. Medina-Bulo, F. Palomo-Lozano, J.A. Alonso-Jiménez, and J.L. Ruiz-Reina</i>	
Polynomial Interpretations with Negative Coefficients .....	185
<i>N. Hirokawa and A. Middeldorp</i>	
New Developments in Symmetry Breaking in Search Using Computational Group Theory .....	199
<i>T. Kelsey, S. Linton, and C. Roney-Dougal</i>	
Recognition of Whitehead-Minimal Elements in Free Groups of Large Ranks .....	211
<i>A.D. Miasnikov</i>	
Four Approaches to Automated Reasoning with Differential Algebraic Structures .....	222
<i>J. Aransay, C. Ballarín, and J. Rubio</i>	
Algorithm-Supported Mathematical Theory Exploration: A Personal View and Strategy .....	236
<i>B. Buchberger</i>	
An Expert System on Detection, Evaluation and Treatment of Hypertension .....	251
<i>E. Roanes-Lozano, E. López-Vidriero Jr., L.M. Laita, E. López-Vidriero, V. Maojo, and E. Roanes-Macías</i>	
<b>Short Presentations</b>	
Two Revision Methods Based on Constraints: Application to a Flooding Problem .....	265
<i>M. Khelfallah and B. Benhamou</i>	
Abstraction-Driven Verification of Array Programs .....	271
<i>D. Déharbe, A. Imine, and S. Ranise</i>	
Singularities in Qualitative Reasoning .....	276
<i>B. Gottfried</i>	
From a Computer Algebra Library to a System with an Equational Prover .....	281
<i>S. Mechveliani</i>	
<b>Author Index</b> .....	285

Artificial Intelligence and Symbolic Computation  
7th International Conference, AISC 2004 Linz, Austria,  
September 22-24, 2004 Proceedings  
Buchberger, B.; Campbell, J.A. (Eds.)  
2004, X, 294 p. 27 illus., Softcover  
ISBN: 978-3-540-23212-4