

Program of ISMVL-2010

Wednesday, May 26th

8:30-9:00 Registration

9:00-9:15 Opening Session

9:15-10:15 Invited Talk (Chair: Mitch Thornton)
Spectral Techniques: The First Decade of the XXI Century
Claudio Moraga

10:25-11:35

Session A: Mathematical Fuzzy Logic 1 (Chair: Félix Bou)

- Generating the Variety of SMV-Algebras
Antonio Di Nola, Tommaso Flaminio
- Note on Construction of Probabilities on Many-valued Events via
Schauder Bases and Inverse Limits
Tomas Kroupa
- Schauder Hats for the Two-Variable Fragment of BL
Stefano Aguzzoli, Simone Bova

Session B: VLSI-Architecture (Chair: Marek Perkowski)

- A Comparison of Architectures for Various Decision Diagram
Machines
Hiroki Nakahara, Tsutomu Sasao, Munehiro Matsuura
- One-Color Two-Phase Asynchronous Communication Links Based on
Multiple-Valued Simultaneous Control
Atsushi Matsumoto, Naoya Onizawa, Takahiro Hanyu
- Low Voltage Semi Floating-Gate Binary to Multiple-Value and
Multiple-Value to Binary Converters
Yngvar Berg

COFFEE BREAK

11:55-13:30

Session A: SAT+Tutorial (Chair: Gernot Salzer)

- Finding Attractors in Synchronous Multiple-Valued Networks Using
SAT-based Bounded Model Checking
Elena Dubrova, Maxim Teslenko, Liu Ming
- New Insights into Encodings from MaxCSP into Partial MaxSAT
Josep Argelich, Alba Cabiscol, Inês Lynce, Felip Manyà
- Non-Deterministic Multi-Valued Logics - A Tutorial
Arnon Avron, Anna Zamansky

Session B: Fuzzy Logic and Soft Computing (Chair: Lluís Godo)

- Truth-Functionality, Rough Sets and Three-Valued Logics
Davide Ciucci, Didier Dubois
- Reconstruction of Additive Generators from Partial Derivatives of Continuous Archimedean T-norms
Mirko Navara, Milan Petrik, Peter Sarkoci
- Learning of the Non-Threshold Functions of Multiple-Valued Logic by a Single Multi-Valued Neuron with a Periodic Activation Function
Igor Aizenberg
- A Graded Inference Approach based on Infinite-Valued Lukasiewicz Semantics
David Picado Muiño

LUNCH (Meeting of the TC Executive Committee)

14:45-15:30

Session A: Test and Verification (Chair: D. Michael Miller)

- MDGs Reduction Technique based on the HOL Theorem Prover
Sa'ed Abed, Otmane Ait Mohamed
- Efficient Simulation-Based Debugging of Reversible Logic
Stefan Frehse, Robert Wille, Rolf Drechsler

Session B: Clones (Chair: Jovanka Pantovic)

- A Classification of Partial Boolean Clones
Dietlinde Lau, Karsten Schölzel
- Endoprimal Monoids and Witness Lemma in Clone Theory
Hajime Machida, Ivo G. Rosenberg

15:30-16:15

Session A: Circuit/ Device Implementation (Chair: Gerhard Dueck)

- Quaternary Voltage-Mode Logic Cells and Fixed-Point Multiplication Circuits
Satyendra R.P. Raju Datla, Mitchell A. Thornton
- Secure Design Flow for Asynchronous Multi-Valued Logic Circuits
Ashur Rafiev, Julian P. Murphy, Alex Yakovlev

Session B: Spectral Techniques (Chair: Hajime Machida)

- Heterogeneous Decision Diagrams for Applications in Harmonic Analysis on Finite Non-Abelian Groups
Stanislav Stankovic, Jaakko Astola, D. Michael Miller, Radomir S. Stankovic
- Remarks on Applicability of Spectral Representations on Finite Non-Abelian Groups in the Design for Regularity
Radomir S. Stankovic, Jaakko Astola, Claudio Moraga

COFFEE BREAK

16:30-18:00

Session A: Mathematical Fuzzy Logic 2 (Chair: Carles Noguera)

- Interpolation Properties for Uninorm Based Logics
Enrico Marchioni, George Metcalfe
- On a Graded Notion of T-norm and Dominance
Libor Behounek, Petr Cintula, Ulrich Bodenhofer, Susanne Saminger-Platz,
Peter Sarkoci
- The Euler Characteristic of a Formula in Gödel Logic
Pietro Codara, Ottavio M. D'Antona, Vincenzo Marra
- Completions in Subvarieties of BL-algebras
Manuela Busaniche, Leonardo Manuel Cabrer

Session B: Logic Design and Switching Theory (Chair: Robert Wille)

- On the Number of Products to Represent Interval Functions by SOPs with
Four-Valued Variables
Tsutomu Sasao
- An Evolutionary Algorithm for Optimization of Pseudo Kronecker
Expressions
Alexander Finder, Rolf Drechsler
- Toffoli Gate Implementation using the Billiard Ball Model
Hadi Hosseini, Gerhard W. Dueck
- Synthesis of Reversible Circuits with No Ancilla Bits for Large Reversible
Functions
Nouraddin Alhagi, Maher Hawash, Marek Perkowski

Thursday, May 27th

9:00-10:00 Invited Talk (Chair: Joan Gispert)

10:10-11:20

Session A: Mathematical Fuzzy Logic 3 (Chair: Franco Montagna)

- The Automorphism Group of Finite Gödel Algebras
Stefano Aguzzoli, Brunella Gerla, Vincenzo Marra
- Infinite-Valued Lukasiewicz Logic Based on Principal Lattice Filters
Félix Bou
- Revisiting Ultraproducts in Fuzzy Predicate Logics
Pilar Dellunde

Session B: Logic Design and Switching Theory (Chair: Radomir Stankovic)

- Floating-Point Numeric Function Generators Based on Piecewise-Split EVMDDs
Shinobu Nagayama, Tsutomu Sasao, Jon T. Butler
- Synthesis of Small Reversible and Pseudo-Reversible Circuits Using Y-Gates and Inverse Y-Gates
Marek Perkowski, Nouraddin Alhagi, Martin Lukac, Neha Saxena, Scott Blakely
- ESOP-based Toffoli Network Generation with Transformations
Yasaman Sanaee, Gerhard W. Dueck

COFFEE BREAK

11:40-13:15

Session A: Clones (Chair: Claudio Moraga)

- Finitely Generated Maximal Partial Clones and their Intersections
Miguel Couceiro, Lucien Haddad
- Galois Connection for Hyper-Clones
Hajime Machida, Jovanka Pantovic, Ivo G. Rosenberg
- Number of Maximal Partial Clones
Karsten Schölzel

Session B: VLSI-Architecture (Chair: Tsutomu Sasao)

- Low-Power Multiple-Valued Reconfigurable VLSI Based on Superposition of Bit-Serial Data and Current-Source Control Signals
Akitaka Ishikawa, Nobuaki Okada, Michitaka Kameyama
- Design of Tamper-Resistant Registers for Multiple-Valued Cryptographic Processors
Yuichi Baba, Naofumi Homma, Atsushi Miyamoto, Takafumi Aoki
- Switching Activity in Stochastic Decoders
Vincent C. Gaudet, Warren J. Gross
- Reducing Reversible Circuit Cost by Adding Lines
D. Michael Miller, Robert Wille, Rolf Drechsler

LUNCH (Meeting of the Symposium Committee)

14:30-16:00 Special Session Organized by Mitch Thornton and Takao Waho:
40th Anniversary of ISMVL, with the participation of Claudio Moraga,
Masao Mukaidono and Dan A. Simovici.

COFFEE BREAK

16:15-17:45

Session A: Algebra and Formal Methods (Chair: Enrico Marchioni)

- The Arity Gap of Polynomial Functions over Bounded Distributive Lattices
Miguel Couceiro, Erkko Lehtonen
- Information-Theoretical Mining of Determining Sets for Partially Defined
Functions
Dan A. Simovici, Dan Pletea, Rosanne Vetro
- Classes of Operations Closed under Permutation, Cylindrification and
Composition
Miguel Couceiro, Erkko Lehtonen

Session B: Circuits/ Devices and Implementation (Chair: Takahiro Hanyu)

- Low-Energy Pipelined Multiple-Valued Current-Mode Circuit with 8-Level
Static Current-Source Control
Masanori Natsui, Takashi Arimitsu, Takahiro Hanyu
- A Low-Power Successive Approximation Analog-to-Digital Converter
Based on 2-Bit/Step Comparison
Naoki Sugiyama, Hiroshi Noto, Yoshito Nishigami, Ryosuke Oda, Takao
Waho
- A Ternary Partial-Response Signaling Scheme for Capacitively Coupled
Interface
Yasushi Yuminaka, Kyohei Kawano

18:30 Excursion

21:00 BANQUET

Friday, May 28th

9:00-10:00 Invited Talk (Chair: Felip Manyà)
Minimal Unsatisfiability: Models & Algorithms
Joao Marques-Silva

10:10-11:20

Session A: Fuzzy Logic and Soft Computing (Chair: Didier Dubois)

- Multiple-Valued Logic Interpretations of Analogical, Reverse Analogical, and Paralogical Proportions
Henri Prade, Gilles Richard
- Queries with Multivalued Logic-Based Semantics for Imperfect Information Fusion
Daniel Stamate
- An Ontology Mediated Multimedia Information Retrieval System
Umberto Straccia

Session B: Automatic Reasoning and Quantum Computing (Chair: Ines Lynce)

- Logics of Reasonable Information Sources
Arnon Avron, Jonathan Ben-Naim, Beata Konikowska
- Two Many Values: An Algorithmic Outlook on Suszko's Thesis
Carlos Caleiro, João Marcos
- Mapping Binary Functions to a Practical Adiabatic Quantum Computer
David Rosenbaum, Marek Perkowski

COFFEE BREAK

11:40-13:00 Plenary Session

LUNCH