

ISMVL 2023

May 22 – 24, 2023, Kunibiki Messe, Matsue, Shimane, Japan

Final Program



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Sunday, May 21, 2023 (JST)

14:30	Workshop on Post-Binary ULSI Systems Workshop Chair: <i>Yosuke Iijima</i>	@ Small Hall (SH)
17:00	Welcome Reception	@ Multipurpose Hall (MH)

Monday, May 22, 2023 (JST)

08:45	Opening Symposium Chair: <i>Yasushi Yuminaka</i> & Program Chair: <i>Naofumi Homma</i>	@ MH
09:00	[Keynote Address I] Chair: <i>Hiroki Nakahara</i> Tackling the Explosions of Data and Solutions with Low-Bitwidth Computing Architectures <i>Prof. Masato Motomura (Tokyo Institute of Technology, Japan)</i>	@ MH
10:00	Coffee Break	
10:20	[Session 1A: Machine Learning Circuits] @ MH Chair: <i>Yosuke Iijima</i>	[Session 1B: Non Classical Logics] @ SH Chair: <i>Hajime Machida</i>
10:20	A Consideration on Ternary Adversarial Generative Networks <i>K. Nakamura and H. Nakahara</i>	Kalmbach Implication in Orthomodular Posets <i>K. Emir and J. Paseka</i>
10:45	Write-Energy Relaxation of MTJ-Based Quantized Neural-Network Hardware <i>K. Asano, M. Natsui, and T. Hanyu</i>	Natural Deduction with Explosion and Excluded Middle <i>N. Kamide</i>
11:10	Easily Reconstructable Logic Functions <i>T. Sasao</i>	Self-extensional Parafinite Four-valued Modal Logic Compatible with Standard Modal Logic <i>N. Kamide</i>
11:35		An Inductive Construction for Many-Valued Coalgebraic Modal Logic <i>C.-Y. Lin and C.-J. Liao</i>
12:00	Lunch (Symposium & Executive Committee Meeting)	@ MH

Monday, May 22, 2023 (JST) (continued)		
13:20	[Session 2A: Medical & Healthcare] @ MH Chair: <i>Yukihiro Iguchi</i>	[Session 2B: Function Representation & Transformation] @ SH Chair: <i>Rei Ueno</i>
13:20	On Neural-Network-Based Detection for Hypertensive Subjects Using Classification of Retinal Fundus Photographs <i>Y. Sonetsuji, T. Isokawa, N. Kamiura, and H. Tabuchi</i>	Properties of the Reed-Muller-Fourier Spectra of Maiorana-McFarland Bent Functions <i>C. Moraga, R. Stanković, and M. Stanković</i>
13:45	Predicting the Development of Chronic Lung Disease in Neonates from Chest X-ray Images Using Deep Learning <i>R. Maeda, D. Fujita, and S. Kobashi</i>	Remarks on Gibbs Permutation Matrices for Ternary Bent Functions <i>R. Stanković, M. Stanković, C. Moraga, and J. Astola</i>
14:10	Kidney Tumor Recognition from Abdominal CT Images using Transfer Learning <i>S. Wasi, S. B. Alam, R. Rahman, M. A. Amin, and S. Kobashi</i>	Decomposition-Based Representation of Symmetric Multiple-Valued Functions <i>S. Nagayama, T. Sasao, and J. Butler</i>
14:35	Detection of Osteochondritis Dissecans Using Convolutional Neural Networks for Computer-aided Diagnosis of Baseball Elbow <i>K. Sasaki, D. Fujita, K. Takatsuji, Y. Kotoura, M. Minami, Y. Kobayashi, T. Sukenari, Y. Kida, K. Takahashi, and S. Kobashi</i>	Logic Synthesis from Polynomials with Coefficients in the Field of Rationals <i>B. Sampathkumar, B. Martin, R. Das, P. Kalla, and F. Enescu</i>
15:00	Coffee Break	
15:20	[Session 3A: Signal/Data Processing] @ MH Chair: <i>Masanori Natsui</i>	[Session 3B: Algebra & Clone] @ SH Chair: <i>Jovanka Pantović</i>
15:20	Delta-Sigma Domain Signal Processing: A Review with Relevant Topics in Stochastic Computing <i>T. Waho, A. Koyama, and H. Hayashi</i>	Kleene Algebra With Tests for Weighted Programs <i>I. Sedlar</i>
15:45	PAM-4 Data Transmission Quality Evaluation Using Two- and Three-Dimensional Mapping of Received Symbols <i>Y. Yuminaka, K. Nakajima, and Y. Iijima</i>	On Quotient Algebras of Normal eo-algebras by Congruences <i>M. F. Kawaguchi and M. Kondo</i>
16:10	Evaluation and Symbol Classification of Multi-Valued Signaling Using Two-Dimensional Symbol Mapping with Linear Mixture Model <i>Y. Iijima, K. Nakajima, and Y. Yuminaka</i>	Search for Some Majority Operation and Studies of its Centralizing Monoid <i>H. Machida</i>
16:35	Data Mining Using Multi-Valued Logic Minimization <i>T. Sasao</i>	Weak Bases for Maximal Clones <i>M. Behrisch</i>

Tuesday, May 23, 2023 (JST)		
09:00	[Keynote Address II] Chair: <i>Yasushi Yuminaka</i> @ MH A Challenge of Scalable Quantum Computing Control Systems <i>Prof. Takefumi Miyoshi (QuEL, Inc./e-trees. Japan, Inc./QIQB, Osaka University, Japan)</i>	
10:00	Coffee Break	
10:20	[Session 4A: Quantum Circuits] @ MH Chair: <i>Mitchell Thornton</i>	[Session 4B: SAT Solvers] @ SH Chair: <i>Tsutomu Sasao</i>
10:20	Towards an Automated Framework for Realizing Quantum Computing Solutions <i>N. Quetschlich, L. Burgholzer, and R. Wille</i>	Benchmarking Łukasiewicz Logic Solvers with Properties of Neural Networks <i>S. Preto, F. Manyà, and M. Finger</i>

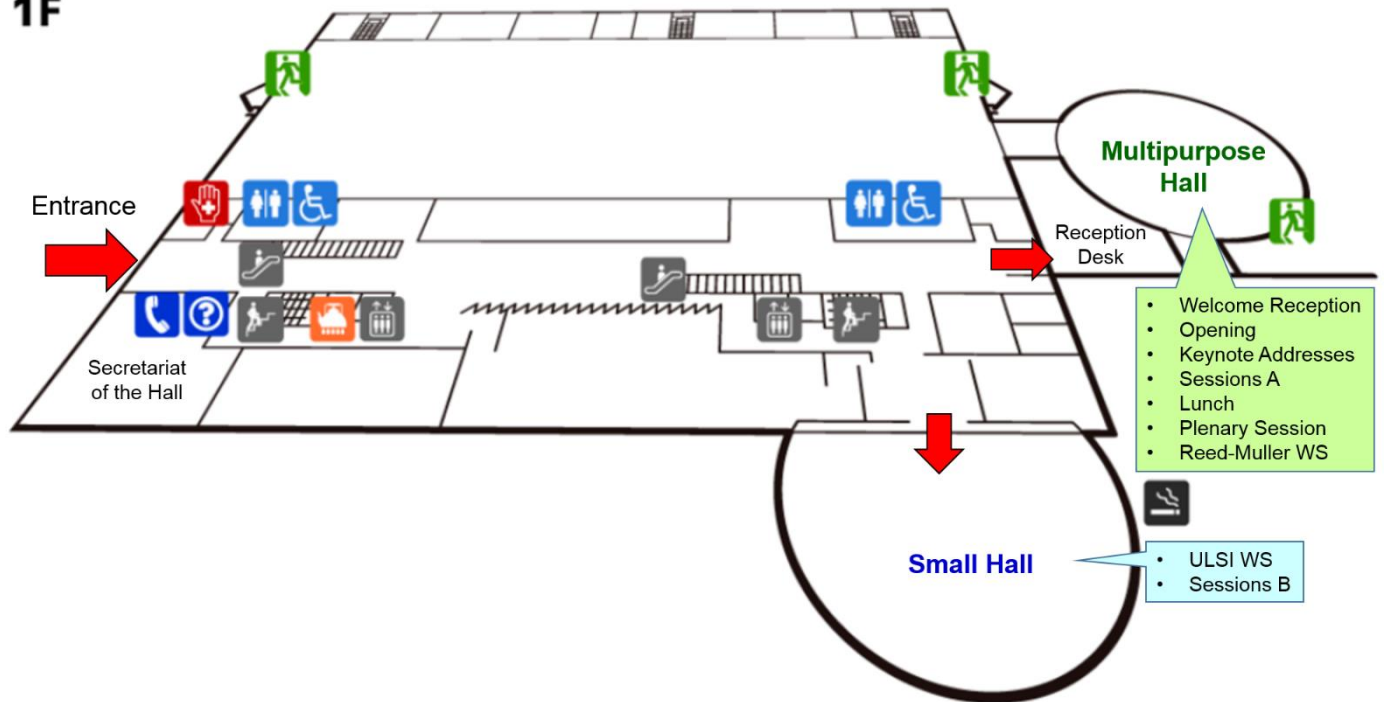
Tuesday, May 23, 2023 (JST) continued		
10:45	Optimized Density Matrix Representations: Improving the Basis for Noise-Aware Quantum Circuit Design Tools <i>T. Grurl, J. Fuß, and R. Wille</i>	Linking Łukasiewicz Logic and Boolean Maximum Satisfiability <i>S. Preto, F. Manyà, and M. Finger</i>
11:10	Using S Gates and Relative Phase Toffoli Gates to Improve T-Count in Quantum Boolean Circuits <i>D. Clarino, S. Kuroda, and S. Yamashita</i>	A Tableau Calculus for Signed Maximum Satisfiability <i>S. Li, J. Coll, D. Habet, C.-M. Li, and F. Manyà</i>
11:35	Quick Computation of the Lower Bound on the Gate Count of Toffoli-Based Reversible Logic Circuits <i>T. Hirayama, R. Suzuki, K. Yamanaka, and Y. Nishitani</i>	From Ramon Llull To Lov Grover: Towards A Universal Logic Machine <i>G. Opsahl and M. Perkowski</i>
12:00	Short Break	
12:30	Excursion (Lunch on the bus)	
18:30	Banquet at the Shimane Art Museum	

Wednesday, May 24, 2023 (JST)		
09:00	[Keynote Address III] Chair: <i>Naofumi Homma</i> @ MH Card-based Cryptography: How to Securely Compute Multiple-valued Functions Using a Deck of Cards <i>Prof. Takaaki Mizuki (Tohoku University, Japan)</i>	
10:00	Coffee Break	
10:20	[Session 5A: Security] @ MH Chair: <i>Shinobu Nagayama</i>	[Session 5B: Emerging Applications] @ SH Chair: <i>Ryoichi Miyauchi</i>
10:20	Multiple-Valued Logic Physically Unclonable Function in Photonic Integrated Circuits <i>D. MacFarlane, H. Shahoei, I. Achu, E. Stewart, W. Oxford, and M. Thornton</i>	A Logical Method to Predict Outcomes After Coronary Artery Bypass Grafting <i>T. Sasao, A. Holmgren, and P. Eklund</i>
10:45	Higher-Order Boolean Masking Does Not Prevent Side-Channel Attacks on LWE/LWR-based PKE/KEMs <i>K. Ngo, R. Wang, E. Dubrova, and N. Paulsruud</i>	Discovering Emerging Applications of Multi-Valued Logic: Protocols for Human-Autonomy Teaming <i>P. Shmerko, M. Perkowski, Y. Iwashita, A. Stoica, and S. Yanushkevich</i>
11:10	Efficient DFA-Resistant AES Hardware Based on Concurrent Fault Detection Scheme <i>R. Ueno, Y. Yagyu, and N. Homma</i>	Some Consistency Criteria for Many-Valued Judgment Aggregation <i>C. Fermüller</i>
11:35	Plenary Session & Closing @ MH TCMVL Chair: <i>Jovanka Pantović</i> & Symposium Chair: <i>Yasushi Yuminaka</i>	
12:20	Lunch @ MH	
13:20	Reed-Muller 2023 Workshop @ MH Workshop Chair: <i>Tsutomu Sasao</i>	

MEMO:

Brief Floor Map of Kunibiki Messe

1F



Brief Map of Shimane Art Museum (Banquet Venue)

