

Session at a Glance

Septempber 6, 2010 (Monday)

September 6, 9:00–9:20	Opening Ceremony, Room A			
September 6, 9:20–10:20	Plenary Talk 1, Prof. Albert Goldbeter Chair: Maciej Ogorzalek, Room A			
September 6, 10:20–10:50	Coffee break			
	Room A	Room B	Room C	Room D
September 6, 10:50–12:30	A1L-A [Special Session] Evolving Complex Networks and their Applications - 1 Chair: Norbert Marwan Page xvii	A1L-B Cellular Neural Networks Chair: Hideki Asai Page xviii	A1L-C Nonlinear Circuits and Systems Chair: Jinhu Lu Page xviii	A1L-D System Analysis and Modeling Chair: Takashi Hikihara Page xix
September 6, 12:30–14:00	Lunch break			
September 6, 14:00–15:20	A2L-A [Special Session] Evolving Complex Networks and their Applications - 2 Chair: Norbert Marwan Page xix	A2L-B [Special Session] Hybrid Manycore Architectures - Capabilities and Limitations - 1 Chair: Peter Szolgay Page xx	A2L-C [Special Session] Pattern Formation, Emergence, and Imaging Featuring Nonlinear Dynamics - 1 Chair: Ken'ichi Fujimoto Page xxi	A2L-D Neural Networks 1 Chair: Yoshihiko Horio Page xxi
September 6, 15:20–15:40	Coffee break			
September 6, 15:40–17:00	A3L-A [Special Session] Verified Numerical Computations for Linear and Nonlinear Problems Chair: Katsuhisa Ozaki Page xxii	A3L-B [Special Session] Hybrid Manycore Architectures - Capabilities and Limitations - 2 Chair: Peter Szolgay Page xxii	A3L-C [Special Session] Pattern Formation, Emergence, and Imaging Featuring Nonlinear Dynamics - 2 Chair: Tetsushi Ueta Page xxiii	A3L-D Neural Networks 2 Chair: Tohru Ikeguchi Page xxiii
September 6, 18:30–	Countryside Dinner at Zalesie			

September 7, 2010 (Tuesday)

	Room A	Room B	Room C	Room D	Room E
September 7, 9:00–10:40	B1L-A [Special Session] Aspects of Optimization with Nonlinear Dynamics - 1 Chair: Mikio Hasegawa Page xxiv	B1L-B [Special Session] Nonlinear Analysis and Processing of Facial Images Chair: Hironobu Fukai Page xxiv	B1L-C Complex Systems Chair: Guanrong Chen Page xxv	B1L-D Bifurcation and Chaos Chair: Keiji Konishi Page xxv	B1L-E Circuit Implementation Chair: Tetsuya Asai Page xxvi
September 7, 10:40–11:10	Coffee break				
September 7, 11:10–12:10	Plenary Talk 2, Prof. Hideki Asai Chair: Zbigniew Galias, Room A				
September 7, 12:10–13:40	Lunch break				
September 7, 13:40–15:20	B2L-A [Special Session] Aspects of Optimization with Nonlinear Dynamics - 2 Chair: Kenya Jin'no Page xxvii	B2L-B [Special Session] Complex Networks and their Dynamics - 1 Chairs: Kohshi Okumura and Ljiljana Trajkovic Page xxvii	B2L-C Communication Systems Chair: Gianluca Setti Page xxviii	B2L-D Chaotic Circuits Chairs: Arunas Tamasevicius Page xxviii	B2L-E Circuit Analysis Chair: Roni Khazaka Page xxix
September 7, 15:20–15:50	Coffee break				
September 7, 15:50–17:30	B3L-A [Special Session] Aspects of Optimization with Nonlinear Dynamics - 3 Chair: Masaharu Adachi Page xxix	B3L-B [Special Session] Complex Networks and their Dynamics - 2 Chairs: Kohshi Okumura and Ljiljana Trajkovic Page xxx	B3L-C Time Sequences Chair: Masayuki Ikebe Page xxx	B3L-D Control and Robotics Chair: Yuzo Ohta Page xxxi	
September 7, 19:30–	Gala Dinner at Wierzynek				

September 8, 2010 (Wednesday)

	Room A	Room B	Room C	Room D
September 8, 9:00–10:40	C1L-A [Special Session] Nonlinear Time Series Analysis - 1 Chairs: Max Little and Michael Small Page xxxii	C1L-B Image and Signal Processing Chair: Mio Kobayashi Page xxxii	C1L-C [Special Session] Nonlinear Maps and Applications - 1 Chair: Daniele Fournier-Prunaret Page xxxiii	C1L-D Bio-Inspired Algorithms Chair: Hidehiro Nakano Page xxxiii
September 8, 10:40–11:10	Coffee break			
September 8, 11:10–12:10	Plenary Talk 3, Prof. Martin Hasler Room A		Chair: Yoshifumi Nishio,	
September 8, 12:10–13:40	Lunch break			
September 8, 13:40–15:00	C2L-A [Special Session] Nonlinear Time Series Analysis - 2 Chairs: Max Little and Michael Small Page xxxiv	C2L-B [Special Session] A Nonlinear Dynamics Perspective of Cellular Automata - 1 Chairs: Giovanni Paziienza and Tamás Roska Page xxxv	C2L-C [Special Session] Nonlinear Maps and Applications - 2 Chair: Tetsushi Ueta Page xxxv	C2L-D Coupled Oscillators 1 Chair: Takashi Hisakado Page xxxv
September 8, 15:00–15:20	Coffee break			
September 8, 15:20–16:40	C3L-A [Special Session] Nonlinear Time Series Analysis - 3 Chairs: Max Little and Michael Small Page xxxvi	C3L-B [Special Session] A Nonlinear Dynamics Perspective of Cellular Automata - 2 Chairs: Giovanni Paziienza and Tamás Roska Page xxxvi	C3L-C Optimization Chair: Norikazu Takahashi Page xxxvii	C3L-D Coupled Oscillators 2 Chair: Takuji Kousaka Page xxxvii
September 8, 17:00–17:30	Farewell and Award Ceremony, on the first floor (Ravens)			

Technical Program

P1L-A [Plenary Talk]

DATE: September 6, 10:20–11:20

ROOM: Room A

Chair: Maciej Ogorzalek (Jagiellonian University)

- P1L-A1** **Nonlinear Dynamics of Biological Rhythms** 1
Albert Goldbeter (Université Libre de Bruxelles)

A1L-A [Special Session] Evolving Complex Networks and their Applications - 1

DATE: September 6, 10:50–12:30

ROOM: Room A

Chair: Norbert Marwan (Potsdam Institute for Climate Impact Research)

- A1L-A1** **Dynamics on Complex Networks with Time Varying Topology** 2
Jügen Kurths (Potsdam Institute for Climate Impact Research), Jonathan F. Donges (Potsdam Institute for Climate Impact Research), Norbert Marwan (Potsdam Institute for Climate Impact Research), Yong Zou (Potsdam Institute for Climate Impact Research)

- A1L-A2** **Evolving Climate Networks** 3
Norbert Marwan (Potsdam Institute for Climate Impact Research), Jonathan F. Donges (Potsdam Institute for Climate Impact Research), Alexander Radebach (Potsdam Institute for Climate Impact Research), Jakob Runge (Potsdam Institute for Climate Impact Research), Jügen Kurths (Potsdam Institute for Climate Impact Research)

- A1L-A3** **Synchronization Regulation of a Complex Network by Link Rewiring or Node Pinning** 7
Irene Sendiña-Nadal (Universidad Rey Juan Carlos), Juan Antonio Almendral (Universidad Rey Juan Carlos), Inmaculada Leyva (Universidad Rey Juan Carlos), Javier Buldú (Universidad Rey Juan Carlos), Dongchuan Yu (University of Electronic Science and Technology), Stefano Boccaletti (CNR-Istituto dei Sistemi Complessi)

- A1L-A4** **Why Scale-Free Networks Are a Good Thing for Controlling Disease Transmission** 11
Michael Small (Hong Kong Polytechnic University)

A1L-B Cellular Neural Networks

DATE: September 6, 10:50–12:30

ROOM: Room B

Chair: Hideki Asai (Shizuoka University)

- A1L-B1 Propagation Mechanism of Phase-Inversion Wave in in-and-Anti-Phase Synchronization on 2D Lattice Oscillator** 15
Seiko Kunihiro (Hiroshima Institute of Technology), Hitoshi Aburatani (Hiroshima Institute of Technology), Masayuki Yamauchi (Hiroshima Institute of Technology), Yoshifumi Nishio (Tokushima University)
- A1L-B2 Cellular Neural Networks with Hopfield Neural Networks Considering the Confidence Degree** 19
Yasuhiro Ueda (Tokushima University), Masakazu Kawahara (Tokushima University), Yoko Uwate (Tokushima University), Yoshifumi Nishio (Tokushima University)
- A1L-B3 Characteristics of Cellular Neural Networks with Dynamic Template for Motion Pictures** 23
Masakazu Kawahara (Tokushima University), Yoko Uwate (Tokushima University), Yoshifumi Nishio (Tokushima University)
- A1L-B4 DT-CNN Annealing with Additive Noise Generated by Class 3 CA: a Comparison with Chaos Annealing** 27
Tomohiro Fujita (Ritsumeikan University), Takeshi Ogura (Ritsumeikan University)
- A1L-B5 Can You Achieve Any Function with a 2-Neuron CNN?** 31
Mireia Vinyoles-Serra (Universitat Ramon Llull), Xavier Vilasís-Cardona (Universitat Ramon Llull)

A1L-C Nonlinear Circuits and Systems

DATE: September 6, 10:50–12:30

ROOM: Room C

Chair: Jinhu Lu (Chinese Academy of Sciences)

- A1L-C1 Generation Method of Extremely Ill-Conditioned Integer Matrices** 35
Tetsuo Nishi (Waseda University), Siegfried Rump (Technische Universität Hamburg), Shin'ichi Oishi (Waseda University)
- A1L-C2 Performance of Adiabatic Quantum Computation Using Neuron-Like Interconnections** 39
Shigeo Sato (Tohoku University), Aiko Ono (Tohoku University), Mitsunaga Kinjo (University of the Ryukyus), Koji Nakajima (Tohoku University)
- A1L-C3 Relaxation Oscillation in Single-Electron Transistor with Resistively-Shunted Gate** 43
Yoshinao Mizugaki (University of Electro-Communications)

A1L-C4	Rotation Angle Measurement System Using Printed Spiral Inductor and Attractor of Chua's Circuit	47
---------------	--	----

Takahiro Kurokou (Hiroshima Institute of Technology), Kazuhisa Yoshimatsu (Hiroshima Institute of Technology), Masayuki Yamauchi (Hiroshima Institute of Technology), Mamoru Tanaka (Sophia University)

A1L-C5	Inter-Connection of Parallel Connected Class D Amplifiers Operated at Different Switching Frequencies	51
---------------	--	----

Yusuke Ishikawa (Fukuoka University), Ryuta Yamamoto (Fukuoka University), Hiroyuki Uchiyama (Fukuoka University), Xiuqin Wei (Chiba University), Hiroo Sekiya (Chiba University), Tadashi Suetsugu (Fukuoka University)

A1L-D System Analysis and Modeling

DATE: September 6, 10:50–12:30

ROOM: Room D

Chair: Takashi Hikihara (Kyoto University)

A1L-D1	Stochastic Resonance in a Simple Electric Circuit Having a Double-Well Potential	55
---------------	---	----

Akira Utagawa (Hokkaido University), Tetsuya Asai (Hokkaido University), Yoshihito Amemiya (Hokkaido University)

A1L-D2	New Idea of the Pseudo-Inverse Maps in Optimal Pre-Correction of Nonlinear Systems As the Result of Modeling and Optimal Past-Correction	59
---------------	---	----

Grzegorz Ciesielski (Technical University of Lodz), Paulina Sobanska (INWAT Ltd., Research and Design Company, Lodz)

A1L-D3	Differences Between Theoretical and Measured Spectrum in Systems Employing a Spread-Spectrum Clock for EMI Reduction Purposes	63
---------------	--	----

Fabio Pareschi (Universita degli studi di Ferrara), Gianluca Setti (Universita degli studi di Ferrara), Riccardo Rovatti (Universitdi Bologna), Giovanni Frattini (National Semiconductor)

A1L-D4	Rigorous Parameter Estimation for Noisy Mixed-Effects Models	67
---------------	---	----

Alexander Danis (Uppsala University), Andrew Hooker (Uppsala University), Warwick Tucker (Uppsala University)

A1L-D5	Evolution of Density of States for Delay Blood Cell Production Model	71
---------------	---	----

Pawel Jozef Mitkowski (AGH University of Science and Technology), Maciej Ogorzalek (Jagiellonian University)

A2L-A [Special Session] Evolving Complex Networks and their Applications - 2

DATE: September 6, 14:00–15:20

ROOM: Room A

Chair: Norbert Marwan (Potsdam Institute for Climate Impact Research)

A2L-A1 Generalized Modeling of Heterogeneous Nonlinear Networks 75

Thilo Gross (Max-Planck Institute for the Physics of Complex Systems), Dirk Stiefs (Max-Planck Institute for the Physics of Complex Systems), Lars Rudolf (Max-Planck Institute for the Physics of Complex Systems), Martin Zumsande (Max-Planck Institute for the Physics of Complex Systems)

A2L-A2 Hierarchical and Modular Organization of Corticocortical Networks Supports Functional Integration and Segregation in the Mammalian Brain 79

Gorka Zamora-López (University of Potsdam), Changsong Zhou (Hong Kong Baptist University), Jürgen Kurths (Potsdam Institute for Climate Impact Research)

A2L-A3 Recurrence Network Approach to a Phase Space of a Time-Delay System 83

Dharmapuri Vijayan Senthilkumar (Potsdam Institute for Climate Impact Research), Norbert Marwan (Potsdam Institute for Climate Impact Research), Jürgen Kurths (Potsdam Institute for Climate Impact Research)

A2L-A4 Recurrence-Based Evolving Networks for Time Series Analysis of Complex Systems 87

Reik V. Donner (Potsdam Institute for Climate Impact Research), Jonathan F. Donges (Potsdam Institute for Climate Impact Research), Yong Zou (Potsdam Institute for Climate Impact Research), Norbert Marwan (Potsdam Institute for Climate Impact Research), Jürgen Kurths (Potsdam Institute for Climate Impact Research)

A2L-B [Special Session] Hybrid Manycore Architectures - Capabilities and Limitations - 1

DATE: September 6, 14:00–15:20

ROOM: Room B

Chair: Peter Szolgay (Hungarian Academy of Sciences)

A2L-B1 Clustering CNN Devices for Smart Networks 91

Lambert Spaanenburg (Lund University), Suleyman Malki (Lund University)

A2L-B2 Hierarchical Feature Extraction for Dynamic Feature and Signature Tracking 95

Vilmos Szabo (Pazmany Peter Catholic University), Csaba Rekeczky (Eutecus Inc.)

A2L-B3 Mapping of High Performance Data-Flow Graphs Into Programmable Logic Devices 99

Csaba Nemes (Péter Pázmány Catholic University), Zoltán Nagy (Hungarian Academy of Sciences), Miklós Ruzinkó (Hungarian Academy of Sciences), András Kiss (Péter Pázmány Catholic University)

A2L-B4 An Improved Emulated Digital CNN Architecture for High Performance FPGAs 103

László Füredi (Péter Pázmány Catholic University), Zoltán Nagy (Hungarian Academy of Sciences), András Kiss (Péter Pázmány Catholic University), Péter Szolgay (Péter Pázmány Catholic University)

A2L-C [Special Session] Pattern Formation, Emergence, and Imaging Featuring Nonlinear Dynamics - 1

DATE: September 6, 14:00–15:20

ROOM: Room C

Chair: Ken'ichi Fujimoto (Tokushima University)

- A2L-C1** **Fractal Basins and Boundaries in 2D Maps Inspired in Discrete Population Models** 107
Daniele Fournier-Prunaret (LATTIS-INSA, LAAS-CNRS), Ricardo Lopez-Ruiz (University of Zaragoza)
- A2L-C2** **Accurate Formulas Locating Unstable Periodic Points in Chaos** 111
Tetsushi Ueta (Tokushima University), Kei Nagao (Tokushima University)
- A2L-C3** **Stability of a Switched System for Continuous-Time Tomographic Image Reconstruction** 115
Omar Abou Al-ola (University of Tokushima), Ken'ichi Fujimoto (University of Tokushima), Tetsuya Yoshinaga (University of Tokushima)

A2L-D Neural Networks 1

DATE: September 6, 14:00–15:20

ROOM: Room D

Chair: Yoshihiko Horio (Tokyo Denki University)

- A2L-D1** **Neuronal Avalanches Induced by Spike-Timing-Dependent Plasticity** 119
Shuhei Ohno (Saitama University), Hideyuki Kato (Saitama University), Tohru Ikeguchi (Saitama University)
- A2L-D2** **Estimation of Neural Network Structure by Transforming Spike Sequences to Continuous Time Series** 123
Kaori Kuroda (Saitama University), Tohru Ikeguchi (Saitama University)
- A2L-D3** **Improvement of Accuracy and Processing Speed of a Maximum Neural Network Algorithm for the Channel Assignment Problem** 127
Kazunori Nemoto (University of Aizu), Junji Kitamichi (University of Aizu)
- A2L-D4** **Effect of Piecewise Linear Function on Maximum-Flow Neural Network** 131
Masatoshi Sato (Sophia University), Hisashi Aomori (Tokyo University of Science), Mamoru Tanaka (Sophia University)

A3L-A [Special Session] Verified Numerical Computations for Linear and Nonlinear Problems

DATE: September 6, 15:40–17:00

ROOM: Room A

Chair: Katsuhisa Ozaki (Shibaura Institute of Technology)

- A3L-A1 Computer Assisted Proofs of Solutions to Nonlinear Elliptic Partial Differential Equations** 135
Akitoshi Takayasu (Waseda University), Shin'ichi Oishi (Waseda University), Takayuki Kubo (University of Tsukuba)
- A3L-A2 Verified Bounds for Singular Values, in Particular for the Spectral Norm of a Matrix and its Inverse** 139
Siegfried Rump (Technische Universität Hamburg)
- A3L-A3 Accurate Matrix Singular Values** 140
Takeshi Ogita (Tokyo Woman's Christian University)
- A3L-A4 Condition Numbers of Two-Dimensional Orientation Problem** 144
Katsuhisa Ozaki (Shibaura Institute of Technology), Takeshi Ogita (Tokyo Woman's Christian University), Shin'ichi Oishi (Waseda University)

A3L-B [Special Session] Hybrid Manycore Architectures - Capabilities and Limitations - 2

DATE: September 6, 15:40–17:00

ROOM: Room B

Chair: Peter Szolgyai (Hungarian Academy of Sciences)

- A3L-B1 GPGPU Accelerated Scene Segmentation Using Nonparametric Clustering** 149
Balazs Varga (Péter Pázmány Catholic University), Kristof Karacs (Péter Pázmány Catholic University)
- A3L-B2 Architecture of the Next Generation Real Time CNN Processor: RTCNNP-v2** 153
Evren Cesur (Yildiz Technical University), Nerhun Yildiz (Yildiz Technical University), Vedat Tavsanoglu (Yildiz Technical University)
- A3L-B3 Hardware-Software Co-Design of Nonlinear Active Wave Generator with Microblaze Soft Core Processor** 157
Selman Ergunay (Istanbul Technical University), Ramazan Yeniceri (Istanbul Technical University), Mustak Erhan Yalcin (Istanbul Technical University)
- A3L-B4 Standard C++ Compiling to GPU with Lambda Functions** 161
Adam Rak (Péter Pázmány Catholic University), Gergely Feldhoffer (Péter Pázmány Catholic University), Gergely Balázs Soós (StreamNovation Ltd.), György Cserey (Péter Pázmány Catholic University)

sity)

A3L-C [Special Session] Pattern Formation, Emergence, and Imaging Featuring Nonlinear Dynamics - 2

DATE: September 6, 15:40–17:00

ROOM: Room C

Chair: Tetsushi Ueta (Tokushima University)

- A3L-C1** **Suppression of Nonlinear Traffic Pattern Generation Using Dynamic Bandwidth Management Method** 165
Shigeaki Tanimoto (Chiba Institute of Technology), Yohsuke Kinouchi (University of Tokushima)
- A3L-C2** **Extraction of Image Regions Using Oscillatory Responses in Chaotic Neuronal Network** 169
Mio Musashi (University of Tokushima), Ken'ichi Fujimoto (University of Tokushima), Tetsuya Yoshinaga (University of Tokushima)
- A3L-C3** **Dynamical Micro-Bead Pattern Forming Using Laser Manipulation Techniques** 173
Yoshio Tanaka (National Institute of Advanced Industrial Science and Technology), Shogo Tsutsui (Kagawa University), Mitsuru Ishikawa (National Institute of Advanced Industrial Science and Technology), Hiroyuki Kitajima (Kagawa University)

A3L-D Neural Networks 2

DATE: September 6, 15:40–17:00

ROOM: Room D

Chair: Tohru Ikeguchi (Saitama University)

- A3L-D1** **Support Vector Machines with Online Unsupervised Learning Method and its Application to Surface-Electromyogram Recognition Problems** 177
Hiroki Tamura (University of Miyazaki), Takeshi Yoshimatu (University of Miyazaki), Koichi Tanno (University of Miyazaki)
- A3L-D2** **Kohonen Feature Map Probabilistic Associative Memory Based on Weights Distribution and Area Neuron Increase and Decrease** 181
Takahiro Hada (Tokyo University of Technology), Yuko Osana (Tokyo University of Technology)
- A3L-D3** **Reinforcement Learning Using Improved Kohonen Feature Map Probabilistic Associative Memory Based on Weights Distribution** 185
Shingo Noguchi (Tokyo University of Technology), Yuko Osana (Tokyo University of Technology)
- A3L-D4** **Multi-Layer Perceptron Having Neuro-Glia Network** 189
Chihiro Ikuta (Tokushima University), Yoko Uwate (Tokushima University), Yoshifumi Nishio (Tokushima University)

B1L-A [Special Session] Aspects of Optimization with Nonlinear Dynamics - 1

DATE: September 7, 09:00–10:40

ROOM: Room A

Chair: Mikio Hasegawa (Tokyo University of Science)

- B1L-A1 Canonical Particle Swarm Optimization System** 193
Kenya Jin'no (Nippon Institute of Technology), Takuya Shindo (Nippon Institute of Technology)
- B1L-A2 Particle Swarm Optimization with Novel Concept of Complex Network** 197
Haruna Matsushita (Hosei University), Yoshifumi Nishio (Tokushima University), Toshimichi Saito (Hosei University)
- B1L-A3 Application of Particle Swarm Optimizers to Finding Desired Parameters of Switched Dynamical Systems** 201
Haruna Matsushita (Hosei University), Toshimichi Saito (Hosei University)
- B1L-A4 Dynamical Noise Injection to Chaotic Dynamics for Solving Combinatorial Optimization Problems** 205
Takayuki Suzuki (Saitama University), Takafumi Matsuura (Tokyo University of Science), Tohru Ikeguchi (Saitama University)

B1L-B [Special Session] Nonlinear Analysis and Processing of Facial Images

DATE: September 7, 09:00–10:40

ROOM: Room B

Chair: Hironobu Fukai (Ritsumeikan University)

- B1L-B1 Facial Expression Recognition Using a Simplified Head Model and RBF Networks** 209
Koichi Takahashi (Tokyo University of Agriculture and Technology), Hironobu Fukai (Ritsumeikan University), Yasue Mitsukura (Tokyo University of Agriculture and Technology)
- B1L-B2 Facial Feature Animation and its Artistic Representation** 213
Yang Yang (Xi'an Jiaotong University/Tokushima University), Yuanqi Su (Xi'an Jiaotong University), Yuehu Liu (Xi'an Jiaotong University), Yoshifumi Nishio (Tokushima University)
- B1L-B3 An Embedding and Detection Method of Invisible Calibration Pattern for Print-Type Data Hiding** 217
Hironori Takimoto (Okayama Prefectural University), Seiki Yoshimori (Nippon Bunri University), Yasue Mitsukura (Tokyo University of Agriculture and Technology), Minoru Fukumi (University of Tokushima)
- B1L-B4 Age Estimation Using Kernel Regression Analysis** 221
Hironobu Fukai (Ritsumeikan University), Hironori Takimoto (Okayama Prefectural University),

Yasue Mitsukura (Tokyo University of Agriculture and Technology), Minoru Fukumi (University of Tokushima)

B1L-C Complex Systems

DATE: September 7, 09:00–10:40

ROOM: Room C

Chair: Guanrong Chen (City University of Hong Kong)

- B1L-C1** **A Basic Fuzzy-Estimation Theory for Available Operation of Complicated Large-Scale Network Systems** 225
Kazuo Horiuchi (Waseda University)
- B1L-C2** **Potential Games Based Coverage Control with Voronoi Partition** 229
Saori Teraoka (Osaka University), Toshimitsu Ushio (Osaka University), Takafumi Kanazawa (Osaka University), Naoki Hayashi (Osaka University)
- B1L-C3** **Convergence Analysis of Discrete-Time Multi-Agent Systems Based on Sequential Connectivity** 233
Yao Chen (Academy of Mathematics and Systems Science, Chinese Academy of Sciences), Jinhu Lü (Academy of Mathematics and Systems Science, RMIT University), Daniel W. c. Ho (City University of Hong Kong), Xinghuo Yu (RMIT University)
- B1L-C4** **Equatorial Climate Data Analysis and Forecasting by Singular Spectrum Analysis** 237
Naoki Itoh (University of Potsdam), Jürgen Kurths (Potsdam Institute for Climate Impact Research)
- B1L-C5** **Directional Spike Propagation by Anisotropic Inhibitory Connections Modulated Through STDP in a Recurrent Network** 241
Toshikazu Samura (Kyushu Institute of Technology), Hatsuo Hayashi (Kyushu Institute of Technology)

B1L-D Bifurcation and Chaos

DATE: September 7, 09:00–10:40

ROOM: Room D

Chair: Keiji Konishi (Osaka Prefecture University)

- B1L-D1** **Delay and Release System by Utilized Lorenz Attractor** 245
Yoshiyuki Kobori (Sophia University), Masatoshi Sato (Sophia University), Mamoru Tanaka (Sophia University)
- B1L-D2** **Numerical Calculation Method of Characteristic Multiplier for the Fixed Point in a Rigid Overhead Wire-Pantograph System** 249
Shota Hirashima (Oita University), Shu Karube (Oita National College of Technology), Takuji Kousaka (Oita University)

B1L-D3	Nonlinear Dynamics in Buck-Boost Converter with Spike Noise	253
	Hiroyuki Asahara (Oita University), Takuji Kousaka (Oita University)	
B1L-D4	Decomposition of Symmetric Almost Periodic Oscillation in Three-Phase Circuit	257
	Takashi Hisakado (Kyoto University), Shota Ukai (Kyoto University)	

B1L-E Circuit Implementation

DATE: September 7, 09:00–10:40

ROOM: Room E

Chair: Tetsuya Asai (Hokkaido University)

B1L-E1	A Mathematical-Structure-Based aVLSI Silicon Neuron Model	261
	Takashi Kohno (University of Tokyo), Kazuyuki Aihara (University of Tokyo)	
B1L-E2	Circuit Implementation of an A/D Converter Based on the Negative β-Map with a Discrete-Time Integrator	265
	Yoshihiko Horio (Tokyo Denki University), Kenya Jin'no (Nippon Institute of Technology), Tohru Kohda (Kyushu University), Kazuyuki Aihara (University of Tokyo)	
B1L-E3	Digital-Signal-Waveform Improvement for High-Speed VLSI Packaging	269
	Moritoshi Yasunaga (University of Tsukuba), Hiroshi Nakayama (University of Tsukuba), Yuki Shimauchi (University of Tsukuba), Ikuo Yoshihara (Miyazaki University)	
B1L-E4	Realization of Three-Dimensional DT-CNN on FPGA	273
	Nguyen Tien Dat (Hanoi University of Science and Technology), Nguyen Tien Dzung (Hanoi University of Science and Technology), Thang Manh Hoang (Hanoi University of Science and Technology)	
B1L-E5	Implementation of CNN-Based FFT/IFFT Algorithms on FPGA	277
	Hiep Hoang Le (Hanoi University of Science and Technology), Nguyen Tien Dzung (Hanoi University of Science and Technology), Thang Manh Hoang (Hanoi University of Science and Technology)	

P2L-A [Plenary Talk]

DATE: September 7, 11:10–12:10

ROOM: Room A

Chair: Zbigniew Galias (AGH University)

P2L-A1	Advanced PI/SI/EMI Simulation Technology for High-Speed Electronic Design	281
	Hideki Asai (Shizuoka University)	

B2L-A [Special Session] Aspects of Optimization with Nonlinear Dynamics - 2

DATE: September 7, 13:40–15:20

ROOM: Room A

Chair: Kenya Jin'no (Nippon Institute of Technology)

- B2L-A1** **Effects of Chaotic Fluctuation on the Hopfield Model for the Traveling Salesman Problem** 285
Ayano Hirahara (Tokyo University of Science), Osamu Araki (Tokyo University of Science)
- B2L-A2** **Realizing Ideal Chaotic Dynamics for Combinatorial Optimization Using a Spatiotemporal Filter** 289
Mikio Hasegawa (Tokyo University of Science)
- B2L-A3** **A Method for Solving Very Large Scale TSPs by Chaotic Dynamics** 293
Tohru Ikeguchi (Saitama University), Shun Motohashi (Saitama University), Takafumi Matsuura (Tokyo University of Science)
- B2L-A4** **A Method for Solving Asymmetric Traveling Salesman Problems Using Chaotic Exchange Method and Block Shift Operations** 297
Toshihiro Tachibana (Tokyo Denki University), Masaharu Adachi (Tokyo Denki University)
- B2L-A5** **Double-Assignment Method Driven by Chaotic Neurodynamics for Quadratic Assignment Problems** 301
Kazuaki Shibata (Tokyo Denki University), Yoshihiko Horio (Tokyo Denki University)

B2L-B [Special Session] Complex Networks and their Dynamics - 1

DATE: September 7, 13:40–15:20

ROOM: Room B

Chairs: Kohshi Okumura (Simon Fraser University) and Ljiljana Trajkovic (Simon Fraser University)

- B2L-B1** **Spectral Analysis and Dynamical Behavior of Complex Networks** 305
Kohshi Okumura (Simon Fraser University), Ljiljana Trajkovic (Simon Fraser University)
- B2L-B2** **Complex Congestion Behavior in Deflection Routing** 309
Wilson Wang kit Thong (City University of Hong Kong), Guanrong Chen (City University of Hong Kong)
- B2L-B3** **Scale-Free Property of Affordable Neural Network** 310
Yoshifumi Nishio (Tokushima University), Yoko Uwate (Tokushima University)
- B2L-B4** **Dynamical AD Converter by Saito's Rotation Map in Functional Cellular Neural Sensor Network** 314
Mamoru Tanaka (Sophia University), Toshimichi Saito (Hosei University)

B2L-C Communication Systems

DATE: September 7, 13:40–15:20

ROOM: Room C

Chair: Gianluca Setti (Universita degli studi di Ferrara)

- B2L-C1** **FCC-Compliant Operation of Low-Rate UWB Impulse Radio Applying Multiple Pulses Per Bit** 318
Tamás Krébesz (Péter Pázmány Catholic University), Géza Kolumbán (Péter Pázmány Catholic University), Chi K. Tse (Hong Kong Polytechnic University), Francis C. M. Lau (Hong Kong Polytechnic University)
- B2L-C2** **Radio Coverage Extension of the FCC-Compliant Low-Rate UWB Networking Devices** 322
Géza Kolumbán (Péter Pázmány Catholic University), Tamás Krébesz (Péter Pázmány Catholic University), Francis C. M. Lau (Hong Kong Polytechnic University), Chi K. Tse (Hong Kong Polytechnic University)
- B2L-C3** **Application of Open-Plus-Closed-Loop Control to Secure Communications Using Chaos Masking** 326
Yusuke Yoshida (Ritsumeikan University), Takaya Miyano (Ritsumeikan University)
- B2L-C4** **A Constructive Approach for the Design of Finite Time Self-Synchronizing Coupled Systems with Unknown Inputs** 330
Gilles Millerioux (Nancy University)
- B2L-C5** **CA-Based Stream Cryptography with Variable-Length Key** 334
Masaki Igarashi (Hokkaido University), Masayuki Ikebe (Hokkaido University), Junichi Motohisa (Hokkaido University)

B2L-D Chaotic Circuits

DATE: September 7, 13:40–15:20

ROOM: Room D

Chairs: Arunas Tamasevicius (Center for Physical Sciences and Technology)

- B2L-D1** **Horseshoe Chaos in the Nano-Electro-Mechanical Casimir Nonlinear Oscillator** 338
Michele Bonnin (Politecnico di Torino), Pier Paolo Civalleri (Politecnico di Torino), Marco Gilli (Politecnico di Torino)
- B2L-D2** **Forced Chaos Generator with CMOS Variable Active Inductor Circuit** 342
Yusuke Tsubaki (Tokyo Denki University), Munehisa Sekikawa (Tokyo University), Yoshihiko Horio (Tokyo Denki University)
- B2L-D3** **Chaos in Chua's Oscillator with Chua's Diode and Memristor** 346
Tuyen Tran Xuan (Hanoi University of Science and Technology), Nguyen Tien Dzung (Hanoi University of Science and Technology), Thang Manh Hoang (Hanoi University of Science and Technology)

B2L-D4	Chaos Synchronization in Coupled Delayed Two-Stage Colpitts Circuits for UWB Communications	350
---------------	--	-----

Hien Quang Vu (Hanoi University of Science and Technology), Nguyen Tien Dzung (Hanoi University of Science and Technology), Vu Van Yem (Hanoi University of Science and Technology), Thang Manh Hoang (Hanoi University of Science and Technology)

B2L-D5	An Energy Based Investigation of Rössler Type Chaos on Chua’s Circuit	354
---------------	--	-----

Mustafa Kösem (Istanbul Technical University), Neslihan Serap Sengör (Istanbul Technical University”)

B2L-E Circuit Analysis

DATE: September 7, 13:40–15:20

ROOM: Room E

Chair: Roni Khazaka (McGill University)

B2L-E1	Global Asymptotic Stability Analysis of Nonlinear Circuits for Solving the Maximum Flow Problem	358
---------------	--	-----

Norikazu Takahashi (Kyushu University)

B2L-E2	Analysis and Design of Class-DE Amplifier with Nonlinear Shunt Capacitances at Any Duty Ratio	362
---------------	--	-----

Hiroo Sekiya (Chiba University), Marian Kazimierczuk (Wright State University)

B2L-E3	Soft Fault Diagnosis of Nonlinear Analog Circuits Using the Continuation Approach	366
---------------	--	-----

Michal Tadeusiewicz (Technical University of Lodz), Stanislaw Halgas (Technical University of Lodz)

B2L-E4	Single-Tone Moments Based Adjoint Sensitivity Analysis of Nonlinear Intermodulation Distortion in RF Circuits	370
---------------	--	-----

Dani Tannir (McGill University), Roni Khazaka (McGill University)

B2L-E5	SPICE-Oriented Algorithm for Assessment of Stability for Periodic Solutions	374
---------------	--	-----

Hiroshige Kataoka (Tokushima University), Yoshihiro Yamagami (Tokushima University), Yoshifumi Nishio (Tokushima University), Akio Ushida (Tokushima University)

B3L-A [Special Session] Aspects of Optimization with Nonlinear Dynamics - 3

DATE: September 7, 15:50–17:30

ROOM: Room A

Chair: Masaharu Adachi (Tokyo Denki University)

B3L-A1	A Combinatorial Optimization Method Which Combines Ant Colony Optimization and Chaotic Dynamical	378
---------------	---	-----

Hideki Igeta (Tokyo University of Science), Mikio Hasegawa (Tokyo University of Science)

B3L-A2 **Slide-and-Insert Assignment Method with Chaotic Dynamics for Quadratic Assignment Problems** 382

Yusuke Sakamoto (Tokyo Denki University), Yoshihiko Horio (Tokyo Denki University)

B3L-A3 **Heuristics Methods for Asymmetric Traveling Salesman Problem and Their Applications to DNA Fragment Assembly** 386

Tomohiro Kato (Tokyo University of Science), Mikio Hasegawa (Tokyo University of Science)

B3L-A4 **A Relay Sensor Node Selection Scheme in Wireless Sensor Networks Using a Chaotic Neural Network** 390

Kyohei Fujii (Tokyo City University), Tomoyuki Sasaki (Tokyo City University), Hidehiro Nakano (Tokyo City University), Akihide Utani (Tokyo City University), Arata Miyauchi (Tokyo City University), Hisao Yamamoto (Tokyo City University)

B3L-A5 **Solving a Sink Node Allocation Problem in Wireless Sensor Networks Using a Competitive Particle Swarm Optimization** 394

Yuta Kanamori (Tokyo City University), Yu Taguchi (Tokyo City University), Hidehiro Nakano (Tokyo City University), Akihide Utani (Tokyo City University), Arata Miyauchi (Tokyo City University), Hisao Yamamoto (Tokyo City University)

B3L-B [Special Session] Complex Networks and their Dynamics - 2

DATE: September 7, 15:50–17:30

ROOM: Room B

Chairs: Kohshi Okumura (Simon Fraser University) and Ljiljana Trajkovic (Simon Fraser University)

B3L-B1 **A Brief Overview of Some Recent Advances in Pinning Control of Complex Networks** 398

Jinhu Lu (RMIT University), Xinghuo Yu (RMIT University), David Hill (Australian National University)

B3L-B2 **A Complex Network Perspective to Volatility in Stock Markets** 402

Xiao Liu (Hong Kong Polytechnic University), Chi K. Tse (Hong Kong Polytechnic University)

B3L-B3 **Property of the Chaotic Propagating Pulse Wave in a Ring of Coupled Bistable Oscillators** 406

Kyohei Kamiyama (Meiji University), Tetsuro Endo (Meiji University), Kuniyasu Shimizu (Chiba Institute of Technology), Hiroyuki Kamata (Meiji University)

B3L-B4 **Self-Organized Behaviors in an Adaptive Network of Movable Oscillators** 410

Takaaki Aoki (Kyoto University), Toshio Aoyagi (Kyoto University)

B3L-C Time Sequences

DATE: September 7, 15:50–17:30

ROOM: Room C

Chair: Masayuki Ikebe (Hokkaido University)

- B3L-C1 On Auto-Correlation Values of De Bruijn Sequences** 414
Hiroshi Fujisaki (Kanazawa University), Yuhki Nabeshima (Kanazawa University)
- B3L-C2 A Perturbation-Based Algorithm with Extremely Long Periods of Generated Cycles** 418
Mieczyslaw Jessa (Poznan University of Technology)
- B3L-C3 Spreading Sequences with Negative Auto-Correlation Based on Chaos Theory and Gold Sequences -Increase of Family Sizes and Performance Evaluation-** 422
Akio Tsuneda (Kumamoto University), Taizo Sagara (Kumamoto University)
- B3L-C4 Is Markov Code Superior to i.i.d. in Communication Systems?** 426
Tohru Kohda (Kyushu University), Yutaka Jitsumatsu (Kyushu University), Kazuyuki Aihara (University of Tokyo)
- B3L-C5 Applications of Recurrence Plots in Road Traffic Analysis** 430
Tomasz Grabowski (AGH University of Science and Technology), Maciej Ogorzalek (Jagiellonian University)

B3L-D Control and Robotics

DATE: September 7, 15:50–17:30

ROOM: Room D

Chair: Yuzo Ohta (Kobe University)

- B3L-D1 Discrete Gait Generation for the Compass-Type Biped Robot Modeled by Discrete Mechanics** 434
Tatsuya Kai (Osaka University), Takeshi Shintani (Osaka University)
- B3L-D2 Attitude Stabilization Control of 3D Space Robot Model with Initial Angular Momentum via Model Predictive Control** 438
Tatsuya Kai (Osaka University), Katsunori Kondoh (Osaka University)
- B3L-D3 Adaptive Stabilization of a Saddle Steady State of a Conservative Dynamical System: a Spacecraft at the Lagrange Point L2 of the Sun-Earth System** 442
Elena Tamaseviciute (Swiss Federal Institute of Technology in Zurich), Gytis Mykolaitis (Center for Physical Sciences and Technology), Skaidra Bumeliene (Center for Physical Sciences and Technology), Arunas Tamasevicius (Center for Physical Sciences and Technology)
- B3L-D4 Suppression of Spatio-Temporal Chaos in Excitable Media with Nonexcitable Cells** 446
Masaki Irisawa (Osaka Prefecture University), Keiji Konishi (Osaka Prefecture University), Naoyuki Hara (Osaka Prefecture University), Hideki Kokame (Osaka Prefecture University)
- B3L-D5 Optimal Backstepping Control for Genesio-Tesi Chaotic System Using Genetic Algorithm** 450
Mohammad Reza Modabbernia (Islamic Azad University, Lahijan Branch), Ali Reza Sahab (Islamic Azad University, Lahijan Branch), Masoud Taleb Ziabari (Islamic Azad University, Qazvin Branch),

Seyed Amin Sadjadi Alamdari (Islamic Azad University, Qazvin Branch)

C1L-A [Special Session] Nonlinear Time Series Analysis - 1

DATE: September 8, 09:00–10:40

ROOM: Room A

Chairs: Max Little (University of Oxford) and Michael Small (Hong Kong Polytechnic University)

- C1L-A1** **Recovering Piecewise Constant Signals from Noisy Time Series** 454
Max Little (University of Oxford), Nick Jones (University of Oxford)
- C1L-A2** **Multivariate Synchronization Analysis of EEG Recordings from Epilepsy Patients** 455
Ralph Gregor Andrzejak (Universitat Pompeu Fabra), Georgia Emmanouil Polychronaki (National Technical University of Athens), Andreas Schulze-Bonhage (Epilepsy Center, University Hospital), Konstantina Spiliou Nikita (National Technical University of Athens)
- C1L-A3** **New Nonlinear Markers and Insights Into Speech Signal Degradation for Effective Tracking of Parkinson’s Disease Symptom Severity** 457
Athanasios Tsanas (University of Oxford), Max Little (University of Oxford), Patrick Mcsharry (University of Oxford), Lorraine Ramig (University of Colorado / National Center for Voice and Speech)
- C1L-A4** **Detecting System State Transitions in Environmental Time-Series Using Non-Linear Time Series Analysis** 461
Theodoros Karakasidis (University of Thessaly), Athanasios Fragkou (University of Thessaly), Antonios Liakopoulos (University of Thessaly)

C1L-B Image and Signal Processing

DATE: September 8, 09:00–10:40

ROOM: Room B

Chair: Mio Kobayashi (Anan National College of Tech.)

- C1L-B1** **Associative Dynamics of Color Images in a Chaotic Neural Network** 465
Makito Oku (University of Tokyo), Kazuyuki Aihara (University of Tokyo)
- C1L-B2** **Nonlinear Image Processing for Multiple Object Tracking on Cellular Hardware Platform** 469
Takao Matsui (Ritsumeikan University), Tomohiro Fujita (Ritsumeikan University), Mamoru Nakanishi (Ritsumeikan University), Takeshi Ogura (Ritsumeikan University)
- C1L-B3** **New Method of Sequential Symbolic Analysis of Biomedical Signals** 473
Robert Stepień (Nalecz Institute of Biocybernetics and Biomedical Engineering PAS), Włodzimierz Klonowski (Nalecz Institute of Biocybernetics and Biomedical Engineering PAS)
- C1L-B4** **Speaker Identification with Voiced Speech Variability Modeling Using Phase Space Reconstruction** 476

Lukasz Bronakowski (Technical University of Lodz), Krzysztof Slot (Technical University of Lodz)

- C1L-B5** **Residue to Weighted Converter for the Quinary Moduli Set $5n2, 5n1, 5n$** 480
Hassan Oseily (Beirut Arab University), Ali Haidar (Beirut Arab University)

C1L-C [Special Session] Nonlinear Maps and Applications - 1

DATE: September 8, 09:00–10:40

ROOM: Room C

Chair: Daniele Fournier-Prunaret (INSA, Toulouse)

- C1L-C1** **Basic Learning Characteristics of Digital Spike Maps** 484
Takashi Ogawa (Hosei University), Toshimichi Saito (Hosei University)

- C1L-C2** **Bifurcation Analysis of Coupled Nagumo-Sato Models** 488
Kazutoshi Kinoshita (Tokushima University), Tetsushi Ueta (Tokushima University), Jun'ichi Imura (Tokyo Institute of Technology), Kazuyuki Aihara (University of Tokyo)

- C1L-C3** **Synchronization Phenomena of Globally Coupled Logistic Maps with Time-Varying Parameters** 492
Hironori Kumeno (Tokushima University), Yoshifumi Nishio (Tokushima University), Daniele Fournier-Prunaret (LATTIS-INSA, LAAS-CNRS)

- C1L-C4** **Synchronization in Coupled Maps with Triangular Networks** 496
Yoko Uwate (Tokushima University), Yoshifumi Nishio (Tokushima University)

- C1L-C5** **Analysis of Several Spatio-Temporal Phase Patterns in Coupled Chaotic Maps by Varying Coupling Strength** 500
Masahiro Wada (Konan University), Takuya Fukuda (Konan University)

C1L-D Bio-Inspired Algorithms

DATE: September 8, 09:00–10:40

ROOM: Room D

Chair: Hidehiro Nakano (Tokyo City University)

- C1L-D1** **Ant Colony Optimization with Intelligent and Dull Ants** 504
Sho Shimomura (Tokushima University), Masaki Sugimoto (Tokushima University), Taku Haraguchi (Tokushima university), Haruna Matsushita (Hosei university), Yoshifumi Nishio (Tokushima University)

- C1L-D2** **Comparison of the Linear Algebra Approach and the Evolutionary Computing for Magnetic Field Shaping in Linear Coils** 508
Bartlomiej Garda (AGH-University of Science and Technology), Zbigniew Galias (AGH-University of Science and Technology)

- C1L-D3** **Office Layout Support System Using Genetic Algorithm - Generation of Room Arrangement Plans for Polygonal Space -** 512
 Ryota Tachikawa (Tokyo University of Technology), Yuko Osana (Tokyo University of Technology)
- C1L-D4** **Design of Class E Amplifier Using Particle Swarm Optimization** 516
 Yuichi Tanji (Kagawa University), Hiroo Sekiya (Chiba University)
- C1L-D5** **Improvement of Tug-of-War Model for Two-Armed Bandit Problem: Biologically Inspired Computing Method for Nonlocally-Correlated Parallel Searches** 520
 Song-Ju Kim (Advanced Science Institute, RIKEN), Masashi Aono (Advanced Science Institute, RIKEN), Masahiko Hara (Advanced Science Institute, RIKEN)

P3L-A [Plenary Talk]

DATE: September 8, 11:10–12:10
 ROOM: Room A
 Chair: Yoshifumi Nishio (Tokushima University)

- P3L-A1** **Asymptotic behaviour of blinking (stochastically switched) dynamical systems** 524
 Martin Hasler (EPFL)

C2L-A [Special Session] Nonlinear Time Series Analysis - 2

DATE: September 8, 13:40–15:00
 ROOM: Room A
 Chairs: Max Little (University of Oxford) and Michael Small (Hong Kong Polytechnic University)

- C2L-A1** **Entropy-Based Measures of Causality and Application to Epilepsy** 525
 Dimitris Kugiumtzis (Aristotle University of Thessaloniki)
- C2L-A2** **Nonlinear and Nonparametric Models for Forecasting the US Gross National Product** 529
 Siddharth Arora (University of Oxford), Max Little (University of Oxford), Patrick Mcsharry (University of Oxford)
- C2L-A3** **Using Permutation Complexity Tools to Analyze Complex Spatiotemporal Dynamics** 533
 José M. Amigó (Universidad Miguel Hernández), Samuel Zambrano (Universidad Rey Juan Carlos), Miguel A. f. Sanjuán (Universidad Rey Juan Carlos)

C2L-B [Special Session] A Nonlinear Dynamics Perspective of Cellular Automata - 1

DATE: September 8, 13:40–15:00

ROOM: Room B

Chairs: Giovanni Paziienza (MTA-SZTAKI and Pazmany University) and Tamás Roska (Hungarian Academy of Sciences)

C2L-B1 Robust and Non-Robust Omega-Limit Orbits in 1D Cellular Automata 537

Giovanni E. Paziienza (MTA-SZTAKI and Péter Pázmány Catholic University)

C2L-B2 Uncertainty Profiles for Predicting Complex Nonlinear Dynamics in Cellular Automata: the Case of Five Cells Neighborhood 541

Radu Dogaru (University Politehnica of Bucharest), Ioana Dogaru (University Politehnica of Bucharest)

C2L-C [Special Session] Nonlinear Maps and Applications - 2

DATE: September 8, 13:40–15:00

ROOM: Room C

Chair: Tetsushi Ueta (Tokushima University)

C2L-C1 Border Collision Bifurcations in a Simple Switching Circuit 545

Daniele Fournier-Prunaret (LATTIS-INSA, LAAS-CNRS), Laura Gardini (Universitdegli studi di Urbino Carlo Bo), Pascal Charge (LATTIS-INSA, LAAS-CNRS)

C2L-C2 Analysis of Spike-Trains from Simple Resonate-and-Fire Chaotic Circuit 549

Satoshi Imai (Hosei University), Toshimichi Saito (Hosei University)

C2L-C3 Switched Systems and Applications to Mutual Synchronization 553

Andrea Espinel (IRCCyN, Ecole Centrale de Nantes), Ina Taralova (IRCCyN, Ecole Centrale de Nantes)

C2L-C4 Synthesis of a Spiking Oscillator with a Desired Inter-Spike-Interval Density 557

Tadashi Tsubone (Nagaoka University of Technology)

C2L-D Coupled Oscillators 1

DATE: September 8, 13:40–15:00

ROOM: Room D

Chair: Takashi Hisakado (Kyoto University)

C2L-D1 Exponential Transient Oscillations and Standing Pulses in Rings of Coupled Symmetric Bistable Maps 561

Yo Horikawa (Kagawa University)

C2L-D2 Clustering Synchronization in Pulse-Coupled Oscillators with a Refractory Period and Frequency Distribution 565

Takuya Okuda (Osaka Prefecture University), Keiji Konishi (Osaka Prefecture University), Naoki Hara (Osaka Prefecture University), Hideki Kokame (Osaka Prefecture University)

C2L-D3 Statistical Characters of Synchronization-Optimized Oscillator Networks 569

Tatsuo Yanagita (Hokkaido University), Alexander S. Mikhailov (Fritz-Haber-Institut der Max-Planck-Gesellschaft)

C2L-D4 An Efficient Algorithm for the Evaluation of Master Stability Function in Networks of Coupled Oscillators 573

Marco Righero (Politecnico di Torino), Fernando Corinto (Politecnico di Torino), Mario Biey (Politecnico di Torino)

C3L-A [Special Session] Nonlinear Time Series Analysis - 3

DATE: September 8, 15:20–16:40

ROOM: Room A

Chairs: Max Little (University of Oxford) and Michael Small (Hong Kong Polytechnic University)

C3L-A1 Linearity and Nonlinearity Within Recurrence Plots 577

Yoshito Hirata (University of Tokyo), Kazuyuki Aihara (University of Tokyo)

C3L-A2 Transformation of Growing Networks to Time Series and its Nonlinear Time Series Analysis 581

Yutaka Shimada (Saitama University), Yuta Haraguchi (Saitama University), Tohru Ikeguchi (Saitama University)

C3L-A3 Recurrence Based Complex Network Analysis of Cardiovascular Variability Data to Predict Pre-Eclampsia 585

Norbert Marwan (Potsdam Institute for Climate Impact Research), Niels Wessel (Humboldt University Berlin), Holger Stepan (University of Leipzig), Jürgen Kurths (Potsdam Institute for Climate Impact Research)

C3L-A4 Standard Complex Network Measures of Recurrence-Based Phase Space Networks Constructed from Time Series 589

Ruoxi Xiang (Hong Kong Polytechnic University), Jie Zhang (Hong Kong Polytechnic University), Michael Small (Hong Kong Polytechnic University)

C3L-B [Special Session] A Nonlinear Dynamics Perspective of Cellular Automata - 2

DATE: September 8, 15:20–16:40

ROOM: Room B

Chairs: Giovanni Pazzienza (MTA-SZTAKI and Pazmany University) and Tamás Roska (Hungarian Academy of Sciences)

C3L-B1 **Isle of Eden in 1D Binary Cellular Automaton As a Manifestation of Gödel Incompleteness and a Proposal for a Bridge Between Analytical Results and Spatial-Temporal Logic Patterns** 593

Tamás Roska (Péter Pázmány Catholic University)

C3L-B2 **Symbolic Dynamics of Some Bernoulli-Shift Cellular Automata Rules** 595

Guanrong Chen (City University of Hong Kong), Fangyue Chen (Hangzhou Dianzi University), Junbiao Guan (Hangzhou Dianzi University), Weifeng Jin (Zhejiang Chinese Medical University)

C3L-B3 **Gardens of Eden: Where Nonlinear Dynamics and Formal Languages Meet** 599

Giovanni E. Paziienza (MTA-SZTAKI and Péter Pázmány Catholic University), Marion Oswald (MTA-SZTAKI and Vienna University of Technology)

C3L-C Optimization

DATE: September 8, 15:20–16:40

ROOM: Room C

Chair: Norikazu Takahashi (Kyushu University)

C3L-C1 **Hard and Fuzzy c-Means Clustering Algorithms with Geodesic Dissimilarity** 603

Yuchi Kanzawa (Shibaura Institute of Technology), Yasunori Endo (University of Tsukuba), Sadaaki Miyamoto (University of Tsukuba)

C3L-C2 **Kernelized Fuzzy c-Means Clustering for Uncertain Data with L1-Regularization Term of Penalty Vectors Using Explicit Mapping** 607

Yasunori Endo (University of Tsukuba), Isao Takayama (University of Tsukuba), Yukihiro Hamasuna (University of Tsukuba), Sadaaki Miyamoto (University of Tsukuba)

C3L-C3 **A Classification System Based on Collaboration of Adaptive Resonance Theory Maps and Learning Vector Quantization** 611

Yoko Enosawa (Hosei University), Haruna Matsushita (Hosei University), Toshimichi Saito (Hosei University)

C3L-C4 **Discrete Higher Order Inverse Function Delayed Network** 615

Takahiro Sota (Tohoku University), Yoshihiro Hayakawa (Sendai National College of Technology), Shigeo Sato (Tohoku University), Koji Nakajima (Tohoku University)

C3L-D Coupled Oscillators 2

DATE: September 8, 15:20–16:40

ROOM: Room D

Chair: Takuji Kousaka (Oita University)

C3L-D1 **Analyses of Coupled Hindmarsh-Rose Type Bursting Oscillators** 619

Koji Kurose (Tohoku University), Takahiro Sota (Tohoku University), Yoshihiro Hayakawa (Sendai

National College of Technology), Shigeo Sato (Tohoku University), Koji Nakajima (Tohoku University)

C3L-D2 **Spectral Analysis of the Propagating Pulse Wave in 6 Coupled Bistable Oscillators** 623

Kuniyasu Shimizu (Chiba Institute of Technology), Motomasa Komuro (Teikyo University of Science and Technology), Tetsuro Endo (Meiji University)

C3L-D3 **Bifurcation Analysis of Two Coupled Izhikevich Oscillators** 627

Daisuke Ito (Tokushima University), Tetsushi Ueta (Tokushima University), Kazuyuki Aihara (University of Tokyo)

C3L-D4 **Amplitude Death in a Pair of Time-Delayed Chaotic Oscillators Coupled by a Static Connection** 631

Luan Ba Le (Osaka Prefecture University), Keiji Konishi (Osaka Prefecture University), Hideki Kokame (Osaka Prefecture University), Naoyuki Hara (Osaka Prefecture University)

Author Index

A

Abou Al-ola, Omar: **115**, A2L-C3(xxi)
Aburatani, Hitoshi: **15**, A1L-B1(xviii)
Adachi, Masaharu: **297**, B2L-A4(xxvii)
Aihara, Kazuyuki: **261**, B1L-E1(xxvi), **265**,
B1L-E2(xxvi), **426**, B3L-C4(xxxi), **465**,
C1L-B1(xxxii), **488**, C1L-C2(xxxiii), **577**,
C3L-A1(xxxvi), **627**, C3L-D3(xxxviii)
Almendral, Juan Antonio: **7**, A1L-A3(xvii)
Amemiya, Yoshihito: **55**, A1L-D1(xix)
Amigó, José M.: **533**, C2L-A3(xxxiv)
Andrzejak, Ralph Gregor: **455**, C1L-A2(xxxii)
Aoki, Takaaki: **410**, B3L-B4(xxx)
Aomori, Hisashi: **131**, A2L-D4(xxi)
Aono, Masashi: **520**, C1L-D5(xxxiv)
Aoyagi, Toshio: **410**, B3L-B4(xxx)
Araki, Osamu: **285**, B2L-A1(xxvii)
Arora, Siddharth: **529**, C2L-A2(xxxiv)
Asahara, Hiroyuki: **253**, B1L-D3(xxvi)
Asai, Hideki: **281**, P2L-A1(xxvi)
Asai, Tetsuya: **55**, A1L-D1(xix)

B

Ba Le, Luan: **631**, C3L-D4(xxxviii)
Biey, Mario: **573**, C2L-D4(xxxvi)
Boccaletti, Stefano: **7**, A1L-A3(xvii)
Bonnin, Michele: **338**, B2L-D1(xxviii)
Bronakowski, Lukasz: **476**, C1L-B4(xxxii)
Buldú, Javier: **7**, A1L-A3(xvii)
Bumeliene, Skaidra: **442**, B3L-D3(xxxi)

C

Cesur, Evren: **153**, A3L-B2(xxii)
Charge, Pascal: **545**, C2L-C1(xxxv)
Chen, Fangyue: **595**, C3L-B2(xxxvii)
Chen, Guanrong: **309**, B2L-B2(xxvii), **595**,
C3L-B2(xxxvii)
Chen, Yao: **233**, B1L-C3(xxv)
Ciesielski, Grzegorz: **59**, A1L-D2(xix)
Civalleri, Pier Paolo: **338**, B2L-D1(xxviii)

Corinto, Fernando: **573**, C2L-D4(xxxvi)
Cserey, György: **161**, A3L-B4(xxii)

D

Danis, Alexander: **67**, A1L-D4(xix)
Dogaru, Ioana: **541**, C2L-B2(xxxv)
Dogaru, Radu: **541**, C2L-B2(xxxv)
Donges, Jonathan F.: **2**, A1L-A1(xvii), **3**,
A1L-A2(xvii), **87**, A2L-A4(xx)
Donner, Reik V.: **87**, A2L-A4(xx)

E

Endo, Tetsuro: **406**, B3L-B3(xxx), **623**,
C3L-D2(xxxviii)
Endo, Yasunori: **603**, C3L-C1(xxxvii), **607**,
C3L-C2(xxxvii)
Enosawa, Yoko: **611**, C3L-C3(xxxvii)
Ergunay, Selman: **157**, A3L-B3(xxii)
Espinell, Andrea: **553**, C2L-C3(xxxv)

F

Füredi, László: **103**, A2L-B4(xx)
Feldhoffer, Gergely: **161**, A3L-B4(xxii)
Fournier-Prunaret, Daniele: **107**, A2L-C1(xxi), **492**,
C1L-C3(xxxiii), **545**, C2L-C1(xxxv)
Fragkou, Athanasios: **461**, C1L-A4(xxxii)
Frattini, Giovanni: **63**, A1L-D3(xix)
Fujii, Kyohei: **390**, B3L-A4(xxx)
Fujimoto, Ken'ichi: **115**, A2L-C3(xxi), **169**,
A3L-C2(xxiii)
Fujisaki, Hiroshi: **414**, B3L-C1(xxxi)
Fujita, Tomohiro: **27**, A1L-B4(xviii), **469**,
C1L-B2(xxxii)
Fukai, Hironobu: **209**, B1L-B1(xxiv), **221**,
B1L-B4(xxiv)
Fukuda, Takuya: **500**, C1L-C5(xxxiii)
Fukumi, Minoru: **217**, B1L-B3(xxiv), **221**,
B1L-B4(xxiv)

G

Galias, Zbigniew: **508**, C1L-D2(xxxiii)
Garda, Bartłomiej: **508**, C1L-D2(xxxiii)
Gardini, Laura: **545**, C2L-C1(xxxv)
Gilli, Marco: **338**, B2L-D1(xxviii)
Goldbeter, Albert: **1**, P1L-A1(xvii)
Grabowski, Tomasz: **430**, B3L-C5(xxxix)
Gross, Thilo: **75**, A2L-A1(xx)
Guan, Junbiao: **595**, C3L-B2(xxxviii)

H

Hada, Takahiro: **181**, A3L-D2(xxiii)
Haidar, Ali: **480**, C1L-B5(xxxiii)
Halgas, Stanislaw: **366**, B2L-E3(xxix)
Hamasuna, Yukihiro: **607**, C3L-C2(xxxvii)
Hara, Masahiko: **520**, C1L-D5(xxxiv)
Hara, Naoki: **565**, C2L-D2(xxxvi)
Hara, Naoyuki: **446**, B3L-D4(xxxi), **631**,
C3L-D4(xxxviii)
Haraguchi, Taku: **504**, C1L-D1(xxxiii)
Haraguchi, Yuta: **581**, C3L-A2(xxxvi)
Hasegawa, Mikio: **289**, B2L-A2(xxvii), **378**,
B3L-A1(xxix), **386**, B3L-A3(xxx)
Hasler, Martin: **524**, P3L-A1(xxxiv)
Hayakawa, Yoshihiro: **615**, C3L-C4(xxxvii), **619**,
C3L-D1(xxxvii)
Hayashi, Hatsuo: **241**, B1L-C5(xxv)
Hayashi, Naoki: **229**, B1L-C2(xxv)
Hill, David: **398**, B3L-B1(xxx)
Hirahara, Ayano: **285**, B2L-A1(xxvii)
Hirashima, Shota: **249**, B1L-D2(xxv)
Hirata, Yoshito: **577**, C3L-A1(xxxvi)
Hisakado, Takashi: **257**, B1L-D4(xxvi)
Ho, Daniel W. c.: **233**, B1L-C3(xxv)
Hoang Le, Hiep: **277**, B1L-E5(xxv)
Hooker, Andrew: **67**, A1L-D4(xix)
Horikawa, Yo: **561**, C2L-D1(xxxv)
Horio, Yoshihiko: **265**, B1L-E2(xxvi), **301**,
B2L-A5(xxvii), **342**, B2L-D2(xxviii), **382**,
B3L-A2(xxx)
Horiuchi, Kazuo: **225**, B1L-C1(xxv)

I

Igarashi, Masaki: **334**, B2L-C5(xxviii)
Igeta, Hideki: **378**, B3L-A1(xxix)
Ikebe, Masayuki: **334**, B2L-C5(xxviii)
Ikeguchi, Tohru: **119**, A2L-D1(xxi), **123**,
A2L-D2(xxi), **205**, B1L-A4(xxiv), **293**,

B2L-A3(xxvii), **581**, C3L-A2(xxxvi)

Ikuta, Chihiro: **189**, A3L-D4(xxiii)
Imai, Satoshi: **549**, C2L-C2(xxxv)
Imura, Jun'ichi: **488**, C1L-C2(xxxiii)
Irisawa, Masaki: **446**, B3L-D4(xxxix)
Ishikawa, Mitsuru: **173**, A3L-C3(xxiii)
Ishikawa, Yusuke: **51**, A1L-C5(xix)
Ito, Daisuke: **627**, C3L-D3(xxxviii)
Itoh, Naoki: **237**, B1L-C4(xxv)

J

Jessa, Mieczyslaw: **418**, B3L-C2(xxxix)
Jin'no, Kenya: **193**, B1L-A1(xxiv), **265**,
B1L-E2(xxvi)
Jin, Weifeng: **595**, C3L-B2(xxxvii)
Jitsumatsu, Yutaka: **426**, B3L-C4(xxxix)
Jones, Nick: **454**, C1L-A1(xxxii)

K

Kösem, Mustafa: **354**, B2L-D5(xxix)
Kai, Tatsuya: **434**, B3L-D1(xxxix), **438**, B3L-D2(xxxi)
Kamata, Hiroyuki: **406**, B3L-B3(xxx)
Kamiyama, Kyohei: **406**, B3L-B3(xxx)
Kanamori, Yuta: **394**, B3L-A5(xxx)
Kanazawa, Takafumi: **229**, B1L-C2(xxv)
Kanzawa, Yuchi: **603**, C3L-C1(xxxvii)
Karacs, Kristof: **149**, A3L-B1(xxii)
Karakasidis, Theodoros: **461**, C1L-A4(xxxii)
Karube, Shu: **249**, B1L-D2(xxv)
Kataoka, Hiroshige: **374**, B2L-E5(xxix)
Kato, Hideyuki: **119**, A2L-D1(xxi)
Kato, Tomohiro: **386**, B3L-A3(xxx)
Kawahara, Masakazu: **19**, A1L-B2(xviii), **23**,
A1L-B3(xviii)
Kazimierczuk, Marian: **362**, B2L-E2(xxix)
Khazaka, Roni: **370**, B2L-E4(xxix)
Kim, Song-Ju: **520**, C1L-D5(xxxiv)
Kinjo, Mitsunaga: **39**, A1L-C2(xviii)
Kinoshita, Kazutoshi: **488**, C1L-C2(xxxiii)
Kinouchi, Yohsuke: **165**, A3L-C1(xxiii)
Kiss, András: **99**, A2L-B3(xx), **103**, A2L-B4(xx)
Kitajima, Hiroyuki: **173**, A3L-C3(xxxiii)
Kitamichi, Junji: **127**, A2L-D3(xxi)
Klonowski, Włodzimierz: **473**, C1L-B3(xxxii)
Kobori, Yoshiyuki: **245**, B1L-D1(xxv)
Kohda, Tohru: **265**, B1L-E2(xxvi), **426**,
B3L-C4(xxxix)
Kohno, Takashi: **261**, B1L-E1(xxvi)

Kokame, Hideki: **446**, B3L-D4(xxxi), **565**,
C2L-D2(xxxvi), **631**, C3L-D4(xxxviii)
Kolumbán, Géza: **318**, B2L-C1(xxviii), **322**,
B2L-C2(xxviii)
Komuro, Motomasa: **623**, C3L-D2(xxxviii)
Kondoh, Katsunori: **438**, B3L-D2(xxxi)
Konishi, Keiji: **446**, B3L-D4(xxxi), **565**,
C2L-D2(xxxvi), **631**, C3L-D4(xxxviii)
Kousaka, Takuji: **249**, B1L-D2(xxv), **253**,
B1L-D3(xxv)
Krébesz, Tamás: **318**, B2L-C1(xxviii), **322**,
B2L-C2(xxviii)
Kubo, Takayuki: **135**, A3L-A1(xxii)
Kugiumtzis, Dimitris: **525**, C2L-A1(xxxiv)
Kumeno, Hironori: **492**, C1L-C3(xxxiii)
Kunihiro, Seiko: **15**, A1L-B1(xviii)
Kuroda, Kaori: **123**, A2L-D2(xxi)
Kurokou, Takahiro: **47**, A1L-C4(xix)
Kurose, Koji: **619**, C3L-D1(xxxvii)
Kurths, Jürgen: **2**, A1L-A1(xvii), **3**, A1L-A2(xvii), **79**,
A2L-A2(xx), **83**, A2L-A3(xx), **87**,
A2L-A4(xx), **237**, B1L-C4(xxv), **585**,
C3L-A3(xxxvi)

L

Lü, Jinhua: **233**, B1L-C3(xxv)
Lau, Francis C. M.: **318**, B2L-C1(xxviii), **322**,
B2L-C2(xxviii)
Leyva, Inmaculada: **7**, A1L-A3(xvii)
Liakopoulos, Antonios: **461**, C1L-A4(xxxii)
Little, Max: **454**, C1L-A1(xxxii), **457**,
C1L-A3(xxxii), **529**, C2L-A2(xxxiv)
Liu, Xiao: **402**, B3L-B2(xxx)
Liu, Yuehu: **213**, B1L-B2(xxiv)
Lopez-Ruiz, Ricardo: **107**, A2L-C1(xxi)
Lu, Jinhua: **398**, B3L-B1(xxx)

M

Malki, Suleyman: **91**, A2L-B1(xx)
Manh Hoang, Thang: **273**, B1L-E4(xxvi), **277**,
B1L-E5(xxvi), **346**, B2L-D3(xxviii), **350**,
B2L-D4(xxix)
Marwan, Norbert: **2**, A1L-A1(xvii), **3**, A1L-A2(xvii),
83, A2L-A3(xx), **87**, A2L-A4(xx), **585**,
C3L-A3(xxxvi)
Matsui, Takao: **469**, C1L-B2(xxxii)
Matsushita, Haruna: **197**, B1L-A2(xxiv), **201**,
B1L-A3(xxiv), **504**, C1L-D1(xxxiii), **611**,
C3L-C3(xxxvii)

Matsuura, Takafumi: **205**, B1L-A4(xxiv), **293**,
B2L-A3(xxvii)
Mcsharry, Patrick: **457**, C1L-A3(xxxii), **529**,
C2L-A2(xxxiv)
Mikhailov, Alexander S.: **569**, C2L-D3(xxxvi)
Millerioux, Gilles: **330**, B2L-C4(xxviii)
Mitkowski, Pawel Jozef: **71**, A1L-D5(xix)
Mitsukura, Yasue: **209**, B1L-B1(xxiv), **217**,
B1L-B3(xxiv), **221**, B1L-B4(xxiv)
Miyamoto, Sadaaki: **603**, C3L-C1(xxxvii), **607**,
C3L-C2(xxxvii)
Miyano, Takaya: **326**, B2L-C3(xxviii)
Miyachi, Arata: **390**, B3L-A4(xxx), **394**,
B3L-A5(xxx)
Mizugaki, Yoshinao: **43**, A1L-C3(xviii)
Modabbernia, Mohammad Reza: **450**, B3L-D5(xxxi)
Motohashi, Shun: **293**, B2L-A3(xxvii)
Motohisa, Junichi: **334**, B2L-C5(xxviii)
Musashi, Mio: **169**, A3L-C2(xxiii)
Mykolaitis, Gytis: **442**, B3L-D3(xxxi)

N

Nabeshima, Yuhki: **414**, B3L-C1(xxxi)
Nagao, Kei: **111**, A2L-C2(xxi)
Nagy, Zoltán: **99**, A2L-B3(xx), **103**, A2L-B4(xx)
Nakajima, Koji: **39**, A1L-C2(xviii), **615**,
C3L-C4(xxxvii), **619**, C3L-D1(xxxvii)
Nakanishi, Mamoru: **469**, C1L-B2(xxxii)
Nakano, Hidehiro: **390**, B3L-A4(xxx), **394**,
B3L-A5(xxx)
Nakayama, Hiroshi: **269**, B1L-E3(xxvi)
Nemes, Csaba: **99**, A2L-B3(xx)
Nemoto, Kazunori: **127**, A2L-D3(xxi)
Nikita, Konstantina Spilios: **455**, C1L-A2(xxxii)
Nishi, Tetsuo: **35**, A1L-C1(xviii)
Nishio, Yoshifumi: **15**, A1L-B1(xviii), **19**,
A1L-B2(xviii), **23**, A1L-B3(xviii), **189**,
A3L-D4(xxiii), **197**, B1L-A2(xxiv), **213**,
B1L-B2(xxiv), **310**, B2L-B3(xxvii), **374**,
B2L-E5(xxix), **492**, C1L-C3(xxxiii), **496**,
C1L-C4(xxxiii), **504**, C1L-D1(xxxiii)
Noguchi, Shingo: **185**, A3L-D3(xxiii)

O

Ogawa, Takashi: **484**, C1L-C1(xxxiii)
Ogita, Takeshi: **140**, A3L-A3(xxii), **144**,
A3L-A4(xxii)
Ogorzalek, Maciej: **71**, A1L-D5(xix), **430**,
B3L-C5(xxxi)

Ogura, Takeshi: **27**, A1L-B4(xviii), **469**,
C1L-B2(xxxii)
Ohno, Shuhei: **119**, A2L-D1(xxi)
Oishi, Shin'ichi: **35**, A1L-C1(xviii), **135**,
A3L-A1(xxii), **144**, A3L-A4(xxii)
Oku, Makito: **465**, C1L-B1(xxxii)
Okuda, Takuya: **565**, C2L-D2(xxxvi)
Okumura, Kohshi: **305**, B2L-B1(xxvii)
Ono, Aiko: **39**, A1L-C2(xviii)
Osana, Yuko: **181**, A3L-D2(xxiii), **185**,
A3L-D3(xxiii), **512**, C1L-D3(xxvii)
Oseily, Hassan: **480**, C1L-B5(xxxiii)
Oswald, Marion: **599**, C3L-B3(xxxvii)
Ozaki, Katsuhisa: **144**, A3L-A4(xxii)

P

Pareschi, Fabio: **63**, A1L-D3(xix)
Pazienza, Giovanni E.: **537**, C2L-B1(xxxv), **599**,
C3L-B3(xxxvii)
Polychronaki, Georgia Emmanouil: **455**,
C1L-A2(xxxii)

Q

Quang Vu, Hien: **350**, B2L-D4(xxix)

R

Radebach, Alexander: **3**, A1L-A2(xvii)
Rak, Adam: **161**, A3L-B4(xxii)
Ramig, Lorraine: **457**, C1L-A3(xxxii)
Rekeczky, Csaba: **95**, A2L-B2(xx)
Righero, Marco: **573**, C2L-D4(xxxvi)
Roska, Tamás: **593**, C3L-B1(xxxvii)
Rovatti, Riccardo: **63**, A1L-D3(xix)
Rudolf, Lars: **75**, A2L-A1(xx)
Rump, Siegfried: **35**, A1L-C1(xviii), **139**,
A3L-A2(xxii)
Runge, Jakob: **3**, A1L-A2(xvii)
Ruszinkó, Miklós: **99**, A2L-B3(xx)

S

Sadjadi Alamdari, Seyed Amin: **450**, B3L-D5(xxxi)
Sagara, Taizo: **422**, B3L-C3(xxxi)
Sahab, Ali Reza: **450**, B3L-D5(xxxi)
Saito, Toshimichi: **197**, B1L-A2(xxiv), **201**,
B1L-A3(xxiv), **314**, B2L-B4(xxvii), **484**,
C1L-C1(xxxiii), **549**, C2L-C2(xxxv), **611**,
C3L-C3(xxxvii)

Sakamoto, Yusuke: **382**, B3L-A2(xxx)
Samura, Toshikazu: **241**, B1L-C5(xxv)
Sanjuán, Miguel A. f.: **533**, C2L-A3(xxxiv)
Sasaki, Tomoyuki: **390**, B3L-A4(xxx)
Sato, Masatoshi: **131**, A2L-D4(xxi), **245**,
B1L-D1(xxv)
Sato, Shigeo: **39**, A1L-C2(xviii), **615**,
C3L-C4(xxxvii), **619**, C3L-D1(xxxvii)
Schulze-Bonhage, Andreas: **455**, C1L-A2(xxxii)
Sekikawa, Munehisa: **342**, B2L-D2(xxviii)
Sekiya, Hiroo: **51**, A1L-C5(xix), **362**, B2L-E2(xxix),
516, C1L-D4(xxxiv)
Sendiña-Nadal, Irene: **7**, A1L-A3(xvii)
Sengör, Neslihan Serap: **354**, B2L-D5(xxix)
Senthilkumar, Dharmapuri Vijayan: **83**, A2L-A3(xx)
Setti, Gianluca: **63**, A1L-D3(xix)
Shibata, Kazuaki: **301**, B2L-A5(xxvii)
Shimada, Yutaka: **581**, C3L-A2(xxxvi)
Shimauchi, Yuki: **269**, B1L-E3(xxvi)
Shimizu, Kuniyasu: **406**, B3L-B3(xxx), **623**,
C3L-D2(xxxviii)
Shimomura, Sho: **504**, C1L-D1(xxxiii)
Shindo, Takuya: **193**, B1L-A1(xxiv)
Shintani, Takeshi: **434**, B3L-D1(xxxi)
Slot, Krzysztof: **476**, C1L-B4(xxxii)
Small, Michael: **11**, A1L-A4(xvii), **589**,
C3L-A4(xxxvi)
Soós, Gergely Balázs: **161**, A3L-B4(xxii)
Sobanska, Paulina: **59**, A1L-D2(xix)
Sota, Takahiro: **615**, C3L-C4(xxxvii), **619**,
C3L-D1(xxxvii)
Spaenenburg, Lambert: **91**, A2L-B1(xx)
Stepan, Holger: **585**, C3L-A3(xxxvi)
Stepien, Robert: **473**, C1L-B3(xxxii)
Stiefs, Dirk: **75**, A2L-A1(xx)
Su, Yuanqi: **213**, B1L-B2(xxiv)
Suetsugu, Tadashi: **51**, A1L-C5(xix)
Sugimoto, Masaki: **504**, C1L-D1(xxxiii)
Suzuki, Takayuki: **205**, B1L-A4(xxiv)
Szabo, Vilmos: **95**, A2L-B2(xx)
Szolgay, Péter: **103**, A2L-B4(xx)

T

Tachibana, Toshihiro: **297**, B2L-A4(xxvii)
Tachikawa, Ryota: **512**, C1L-D3(xxxiv)
Tadeusiewicz, Michal: **366**, B2L-E3(xxix)
Taguchi, Yu: **394**, B3L-A5(xxx)
Takahashi, Koichi: **209**, B1L-B1(xxiv)
Takahashi, Norikazu: **358**, B2L-E1(xxix)

Takayama, Isao: **607**, C3L-C2(xxxvii)
Takayasu, Akitoshi: **135**, A3L-A1(xxii)
Takimoto, Hironori: **217**, B1L-B3(xxiv), **221**,
B1L-B4(xxiv)
Taleb Ziabari, Masoud: **450**, B3L-D5(xxxi)
Tamasevicius, Arunas: **442**, B3L-D3(xxxi)
Tamaseviciute, Elena: **442**, B3L-D3(xxxi)
Tamura, Hiroki: **177**, A3L-D1(xxiii)
Tanaka, Mamoru: **47**, A1L-C4(xix), **131**,
A2L-D4(xxi), **245**, B1L-D1(xxv), **314**,
B2L-B4(xxvii)
Tanaka, Yoshio: **173**, A3L-C3(xxiii)
Tanimoto, Shigeaki: **165**, A3L-C1(xxiii)
Tanji, Yuichi: **516**, C1L-D4(xxxiv)
Tannir, Dani: **370**, B2L-E4(xxix)
Tanno, Koichi: **177**, A3L-D1(xxiii)
Taralova, Ina: **553**, C2L-C3(xxxv)
Tavsanoğlu, Vedat: **153**, A3L-B2(xxii)
Teraoka, Saori: **229**, B1L-C2(xxv)
Thong, Wilson Wang kit: **309**, B2L-B2(xxvii)
Tien Dat, Nguyen: **273**, B1L-E4(xxvi)
Tien Dzung, Nguyen: **273**, B1L-E4(xxvi), **277**,
B1L-E5(xxvi), **346**, B2L-D3(xxviii), **350**,
B2L-D4(xxix)
Trajkovic, Ljiljana: **305**, B2L-B1(xxvii)
Tran Xuan, Tuyen: **346**, B2L-D3(xxviii)
Tsanas, Athanasios: **457**, C1L-A3(xxxii)
Tse, Chi K.: **318**, B2L-C1(xxviii), **322**,
B2L-C2(xxviii), **402**, B3L-B2(xxx)
Tsubaki, Yusuke: **342**, B2L-D2(xxviii)
Tsubone, Tadashi: **557**, C2L-C4(xxxv)
Tsuneda, Akio: **422**, B3L-C3(xxxi)
Tsutsui, Shogo: **173**, A3L-C3(xxiii)
Tucker, Warwick: **67**, A1L-D4(xix)

U

Uchiyama, Hiroyuki: **51**, A1L-C5(xix)
Ueda, Yasuhiro: **19**, A1L-B2(xviii)
Ueta, Tetsushi: **111**, A2L-C2(xxi), **488**,
C1L-C2(xxxiii), **627**, C3L-D3(xxxviii)
Ukai, Shota: **257**, B1L-D4(xxvi)
Ushida, Akio: **374**, B2L-E5(xxix)
Ushio, Toshimitsu: **229**, B1L-C2(xxv)
Utagawa, Akira: **55**, A1L-D1(xix)
Utani, Akihide: **390**, B3L-A4(xxx), **394**,
B3L-A5(xxx)
Uwate, Yoko: **19**, A1L-B2(xviii), **23**, A1L-B3(xviii),
189, A3L-D4(xxiii), **310**, B2L-B3(xxvii),
496, C1L-C4(xxxiii)

V

Van Yem, Vu: **350**, B2L-D4(xxix)
Varga, Balazs: **149**, A3L-B1(xxii)
Vilasís-Cardona, Xavier: **31**, A1L-B5(xviii)
Vinyoles-Serra, Mireia: **31**, A1L-B5(xviii)

W

Wada, Masahiro: **500**, C1L-C5(xxxiii)
Wei, Xiuqin: **51**, A1L-C5(xix)
Wessel, Niels: **585**, C3L-A3(xxxvi)

X

Xiang, Ruoxi: **589**, C3L-A4(xxxvi)

Y

Yalcin, Mustak Erhan: **157**, A3L-B3(xxii)
Yamagami, Yoshihiro: **374**, B2L-E5(xxix)
Yamamoto, Hisao: **390**, B3L-A4(xxx), **394**,
B3L-A5(xxx)
Yamamoto, Ryuta: **51**, A1L-C5(xix)
Yamauchi, Masayuki: **15**, A1L-B1(xviii), **47**,
A1L-C4(xix)
Yanagita, Tatsuo: **569**, C2L-D3(xxxvi)
Yang, Yang: **213**, B1L-B2(xxiv)
Yasunaga, Moritoshi: **269**, B1L-E3(xxvi)
Yeniceri, Ramazan: **157**, A3L-B3(xxii)
Yildiz, Nerhun: **153**, A3L-B2(xxii)
Yoshida, Yusuke: **326**, B2L-C3(xxviii)
Yoshihara, Ikuo: **269**, B1L-E3(xxvi)
Yoshimatsu, Kazuhisa: **47**, A1L-C4(xix)
Yoshimatu, Takeshi: **177**, A3L-D1(xxiii)
Yoshimori, Seiki: **217**, B1L-B3(xxiv)
Yoshinaga, Tetsuya: **115**, A2L-C3(xxi), **169**,
A3L-C2(xxiii)
Yu, Dongchuan: **7**, A1L-A3(xvii)
Yu, Xinghuo: **233**, B1L-C3(xxv), **398**, B3L-B1(xxx)

Z

Zambrano, Samuel: **533**, C2L-A3(xxxiv)
Zamora-López, Gorka: **79**, A2L-A2(xx)
Zhang, Jie: **589**, C3L-A4(xxxvi)
Zhou, Changsong: **79**, A2L-A2(xx)
Zou, Yong: **2**, A1L-A1(xvii), **87**, A2L-A4(xx)
Zumsande, Martin: **75**, A2L-A1(xx)