

# Schedule

## December 14

Time	Events	Chair (Organization)
10:00-10:05	OPENING	Yoshifumi Nishio (Tokushima University)
10:05-10:59	Session: Neural and Oscillator Networks	Kenya Jin'no (Nippon Institute of Technology)
BREAK		
11:10-11:40	Session: Invited Talk A	Tadashi Tsubone (Nagaoka University Technology)
11:40-12:34	Session: Chaos Applications	
LUNCH		
13:30-14:00	Session: Invited Talk B	Kiyotaka Yamamura (Chuo University)
14:00-14:54	Session: Modeling	
BREAK		
15:05-15:35	Session: Invited Talk C	Masahiro Wada (Konan University)
15:35-16:29	Session: Bifurcation Analysis	

## December 15

Time	Events	Chair (Organization)
09:30-10:42	Session: Swarm Intelligence	Hidehiro Nakano (Tokyo City University)
BREAK		
10:55-11:25	Session: Invited Talk D	Mamoru Tanaka (Sophia University)
11:25-12:19	Session: Circuit Simulation	
LUNCH		
13:10-13:40	Session: Invited Talk E	Hiroo Sekiya (Chiba University)
13:40-14:00	Poster 1-page Presentation	
14:00-15:00	Session: Poster Session	
BREAK		
15:10-16:58	Session: Communication Systems	Hisato Fujisaka (Hiroshima City University)

# Table of Contents

## 1 4AM1: Neural and Oscillator Networks

Date: December 14, 10:05-10:59

Room: U106, Ohjin Campus, Shikoku University

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

### 14AM1-1 Characteristics of Multi-Layer Perceptron Switching between Learning and Non-Learning Neurons

Chihiro Ikuta (Tokushima Univ.), Yoko Uwate (Tokushima Univ.), Yoshifumi Nishio (Tokushima Univ.)

### 14AM1-2 Image Regeneration based on Sigma Delta modulation Cellular Neural Network with Variable Pulse Density Control

Aya Takahashi (Sophia University), Mamoru Tanaka (Sophia University)

### 14AM1-3 Probabilistic Analysis of An In-Phase Single-Electron Tunneling Oscillator Network

Haruka Noda (Hiroshima city university), Keisuke Nagata (Hiroshima city university), Hisato Fujisaka (Hiroshima city university), Takeshi Kamio (Hiroshima city university), Kazuhisa Haeiwa (Hiroshima city university)

## 1 4AM2: Invited Talk A

Date: December 14, 11:10-11:40

Room: U106, Ohjin Campus, Shikoku University

Chair: Tadashi Tsubone (Nagaoka University Technology)

### 14AM2-1 Circuit is the Language of Engineering

Mamoru Tanaka (Sophia Univ.)

## 1 4AM3: Chaos Applications

Date: December 14, 11:40-12:34

Room: U106, Ohjin Campus, Shikoku University

Chair: Tadashi Tsubone (Nagaoka University Technology)

### 14AM3-1 Evaluation and Comparison of Controlling Energy

Tomohiro Otsu (Tokushima Univ.), Ken'ichi Fujimoto (Tokushima Univ.), Daisuke Ito (Tokushima Univ.), Tetsushi Ueta (Tokushima Univ.)

### 14AM3-2 Sound Creation from Nonlinear Differential Equation

Naruno Fujii (Sophia University), Mamoru Tanaka (Sophia University)

**14AM3-3 A Basic Concept of Particle Swarm Optimization based on Chaos Spike Oscillator**

Yoshikazu Yamanaka (Nagaoka Univ. Tech.), Tadashi Tsubone (Nagaoka Univ. Tech.)

## 1 4PM1: Invited Talk B

Date: December 14, 13:30-14:00

Room: U106, Ohjin Campus, Shikoku University

Chair: Kiyotaka Yamamura (Chuo University)

**14PM1-1 The implementation of the Pulse Coupled Neural Network**

Hiroaki Kurokawa (Tokyo University of Technology), Masahiro Yoshihara (Tokyo University of Technology), Yuta Ishida (Tokyo University of Technology)

## 1 4PM2: Modeling

Date: December 14, 14:00-14:54

Room: U106, Ohjin Campus, Shikoku University

Chair: Kiyotaka Yamamura (Chuo University)

**14PM2-1 A Fundamental Framework of Tracking Control Method using a Pan-Tilt Unit**

Takayuki Matsuda (Konan Univ.), Naoki Hatakeyama (Konan Univ.), Masahiro Wada (Konan Univ.)

**14PM2-2 Asynchronous Cellular Automaton Neuron Modeling and its Reproduction Ability**

Takashi Matsubara (Osaka University), Hiroyuki Torikai (Osaka University)

**14PM2-3 Classical Particle Modeling of Electrons on One-dimensional Periodic Potential**

Keisuke Nagata (Hiroshima City Univ.), Hisato Fujisaka (Hiroshima City Univ.), Takeshi Kamio (Hiroshima City Univ.), Kazuhisa Haeiwa (Hiroshima City Univ.)

## 1 4PM3: Invited Talk C

Date: December 14, 15:05-15:35

Room: U106, Ohjin Campus, Shikoku University

Chair: Masahiro Wada (Konan University)

**14PM3-1 Stability Analysis for the Interrupted Dynamical Systems**

Hiroyuki Asahara (Oita Univ.), Takuji Kousaka (Oita Univ.)

## 1 4PM4: Bifurcation Analysis

Date: December 14, 15:35-16:29

Room: U106, Ohjin Campus, Shikoku University

Chair: Masahiro Wada (Konan University)

**14PM4-1 Improvement of the saddle unstable invariant closed curve pursuit algorithm -A follow-up**

Kyohei Kamiyama (Meiji Univ.), Motomasa Komuro (Teikyo Univ. of Sc.), Tetsuro Endo (Meiji Univ.)

**14PM4-2 Classification of Piecewise Constant Vector Field of Chaotic Spiking Oscillators**

Shinya Tanaka (HOSEI Univ. ), Kunihiro Mitsubori (Takusyoku Univ.), Toshimichi Saito (HOSEI Univ. )

**14PM4-3 Stability Analysis for the Periodic Solution in a Simple System with Periodic Border**

Manabu Yamanaka (Oita Univ.), Hiroyuki Asahara (Oita Univ.), Kazuyuki Aihara (Tokyo Univ.), Takuji Kousaka (Oita Univ.)

## 15AM1: Swarm Intelligence

Date: December 15, 09:30-10:42

Room: Lecture Room, Shinkura Campus, Tokushima University

Chair: Hidehiro Nakano (Tokyo City University)

**15AM1-1 Network-Structured Firefly Algorithm**

Daiki Matsumoto (Kagawa Univ.), Haruna Matsushita (Kagawa Univ.)

**15AM1-2 Particle Swarm Optimization based on Switching Connection**

Ryosuke Sano (HOSEI Univ. ), Kenya Jin'no (Nippon Inst. Tech. ), Toshimichi Saito (HOSEI Univ. )

**15AM1-3 A Nonlinear Blind Source Separation using a Particle Swarm Optimization**

Takuya Kurihara (Nippon Institute of Technology), Kenya Jin'no (Nippon Institute of Technology)

**15AM1-4 An Analog Circuit Implementation of Deterministic Particle Swarm Optimization**

Takahiko Kanda (Nippon Institute of Technology), Takuya Kurihara (Nippon Institute of Technology), Takuya Shindo (Nippon Institute of Technology), Kenya Jin'no (Nippon Institute of Technology)

## 15AM2: Invited Talk D

Date: December 15, 10:55-11:25

Room: Lecture Room, Shinkura Campus, Tokushima University

Chair: Mamoru Tanaka (Sophia University)

**15AM2-1 Swarm-Based Optimization with Dynamically-Changing Topology**

Haruna Matsushita (Kagawa University)

## 15AM3: Circuit Simulation

Date: December 15, 11:25-12:19

Room: Lecture Room, Shinkura Campus, Tokushima University

Chair: Mamoru Tanaka (Sophia University)

**15AM3-1 Finding All Solutions of Piecewise-Linear Resistive Circuits Using Separable Programming**

Hideki Tanaka (Chuo Univ.), Hiroyuki Kato (Chuo Univ. ), Kiyotaka Yamamura (Chuo Univ. )

**15AM3-2 Extended Unit-Cell Model for Modeling of Multilayered Power/Ground Plane**

Yoshifumi Kawamuta (Kagawa University), Yuichi Tanji (Kagawa University)

**15AM3-3 Synchronization of Oscillatory Ring Topology Coupled by Two Types of Resistors**

Takahiro Nagai (Tokushima University), Yoko Uwate (Tokushima University), Yoshifumi Nishio (Tokushima University)

## 15PM1: Invited Talk E

Date: December 15, 13:10-13:40

Room: Lecture Room, Shinkura Campus, Tokushima University

Chair: Hiroo Sekiya (Chiba University)

**15PM1-1 Asynchronous Sequential Logic Neuron Models: Concepts, Proofs of Concepts, and Potential Applications**

Hiroyuki Torikai (Osaka Univ.), Takashi Matsubara (Osaka Univ.), Takuya Noguchi (Osaka Univ.)

## 15PM2: Poster Session

Date: December 15, 13:40-15:00

Room: Lecture Room, Shinkura Campus, Tokushima University

Chair: Hiroo Sekiya (Chiba University)

**15PM2-1 Experiments of Oscillators Synchronization Phenomena Induced by Common Signals**

Asuka Izumisawa (Nippon Institute of Technology), Takahiko Kanda (Nippon Institute of Technology), Takuya Kurihara (Nippon Institute of Technology), Kenya Jin'no (Nippon Institute of Technology)

**15PM2-2 Laboratory Measurement of Chaotic Low-frequency Electrical Therapy Device**

Yuki Okubo (Nippon Institute of Technology), Takahiko Kanda (Nippon Institute of Technology), Takuya Kurihara (Nippon Institute of Technology), Takuya Shindo (Nippon Institute of Technology), Kenya Jin'no (Nippon Institute of Technology)

**15PM2-3 Exploring a Desired Periodic Point for Control of Switched Dynamical Systems**

Masaki Inami (HOSEI Univ. ), Toshimichi Saito (HOSEI Univ. )

**15PM2-4 Bifurcation analysis of Logistic map with a feedback controller**

Daisuke Ito (Tokushima Univ.), Tetsushi Ueta (Tokushima Univ.)

**15PM2-5 Experiments on the Graph Topology and Synchronization Phenomena**

Tomohiro Akimoto (Nippon Institute of Technology), Takuya Shindo (Nippon Institute of Technology), Kenya Jin'no (Nippon Institute of Technology)

**15PM2-6 Investigation of Clustering and Local Bridges in a Complex Network by Coupled Rulkov Maps**

Tomoya Shima (Tokushima University), Yoko Uwate (Tokushima University), Thomas Ott (Zurich University of Applied S), Yoshifumi Nishio (Tokushima University)

**15PM2-7 A Multi-Channel MAC Protocol Using the Control Channel with Pulse/Tone Exchange for Wireless Multi-Hop Network**

Ryo MANZOKU (Chiba University), Hiroo Sekiya (Chiba University), Jing Ma (Chiba University), Kosuke Sanada (Chiba University)

University), Siro Sakata (Chiba University)

**15PM2-8 Application of Cellular Automata to Basic Image Processing**

Yuta Tommono (HOSEI Univ.), Toshimichi Saito (HOSEI Univ.)

**15PM2-9 Investigation of Image Denoising by Cellular Neural Networks with Effect from Friend of a Friend**

Yoshihiro Kato (Tokushima University), Yoko Uwate (Tokushima University), Yoshifumi Nishio (Tokushima University)

**15PM2-10 Research on a New Structure of Three-Layer Cellular Neural Networks**

Muhammad Izzat bin Mohd Idrus (Tokushima Univ.), Yoshihiro Kato (Tokushima Univ.), Yoko Uwate (Tokushima Univ.), Yoshifumi Nishio (Tokushima Univ.)

**15PM2-11 Investigation of Two-Layer Cellular Neural Networks with Switching Only Coupling Templates for Motion Picture Processing**

Kazushige Natsuno (Tokushima University), Yoshihiro Kato (Tokushima University), Yoko Uwate (Tokushima University), Yoshifumi Nishio (Tokushima University)

**15PM2-12 Research of Pattern Recognition by Multi-Layer Perceptron with Neurogenesis**

Yuta Yokoyama (Tokushima Univ.), Chihiro Ikuta (Tokushima Univ.), Yoko Uwate (Tokushima Univ.), Yoshifumi Nishio (Tokushima Univ.)

**15PM2-13 Behavioral Modeling of Class E Amplifiers via MNA Formulation**

Hirotu Kamei (Kagawa Univ.), Yuichi Tanji (Kagawa Univ.)

## 15PM3: Communication Systems

Date: December 15, 15:10-16:58

Room: Lecture Room, Shinkura Campus, Tokushima University

Chair: Hisato Fujisaka (Hiroshima City University)

**15PM3-1 Analysis by Theoretical Calculation for Multicast Transmission on Wireless LAN**

Toshiyuki Ogawa (Nippon Inst. Univ.), Takefumi Hiraguri (Nippon Inst. Univ.), Kenya Jin'no (Nippon Inst. Univ.)

**15PM3-2 A Study on the Simulator Development for Visible Light Communication Using LED and Camera**

Takao FUKUMOTO (Kagawa National Coll. of Tech.), Shintaro ARAI (Kagawa National Coll. of Tech.), Tomohiro YENDO (Nagaoka Univ. of Tech.), Takaya YAMAZATO (Nagoya Univ.), Hiraku OKADA (Nagoya Univ.), Toshiaki FUJII (Nagoya Univ.)

**15PM3-3 A MAC Protocol in Wireless Multi-hop Networks Using Directional Antennas for Directional Hidden Node Problem Avoidance**

Sho Motegi (Chiba Univ.), Hiroo Sekiya (Chiba Univ.), Jing Ma (Chiba Univ.), Kosuke Sanada (Chiba Univ.), Shiro Sakata (Chiba Univ.)

**15PM3-4 Non-saturated and Maximum Throughput Analysis for IEEE 802.11 Wireless multi-hop Networks**

Kosuke Sanada (Chiba Univ.), Hiroo Sekiya (Chiba Univ.), Shiro Sakata (Chiba Univ.)

**15PM3-5 A Simple Method for Calibrating Uniform Linear Array**

Cao xiang (Xi'an Jiaotong University), Xin min (Xi'an Jiaotong University), Nishio Yoshifumi (The University of Tokushima), Zheng ning (Xi'an Jiaotong University), Sano Akira (Keio University)

15PM3-6 **Clustering Patterns Generated in Coupled Chaotic Circuits Networks**

Yuji Takamaru (Tokushima University), Yoko Uwate (Tokushima University), Thomas Ott (ZHAW), Yoshifumi Nishio (Tokushima University)