

Program

Room 1 (Tuesday, 9 September)

Chairman **Peter Davis**

9:00-9:20 **Yoshiki Kuramoto**
Opening Remarks

9:20-10:00 **Kunihiko Kaneko**
Consistency principle in biological dynamical systems

Chairman **Wataru Souma**

10:20-10:50 **Bing-Hong Wang**
Routing strategies and phase transition in network traffic flow

10:50-11:20 **Hawoong Jeong**
Optimal positioning of the facilities

11:20-11:50 **Kikuo Yuta**
Community extraction analysis for online social networks

11:50-12:10 **Yutaka Leon-Suematsu**
New framework for fast identification of communities in large-scale networks

Chairman **Yoshiki Kuramoto**

13:30-14:00 **Hiroaki Daido**
Aging in a large population of coupled oscillators

14:00-14:30 **Choi-Heng Lai**
Optimization of synchronization in gradient clustered networks

14:30-15:00 **Hyunggyu Park**
Synchronization and fluctuation in populations of random frequency oscillators

15:00-15:20 **Hiroshi Kori**
Synchronization engineering

15:20-15:40 **Hyunsuk Hong**
Ising-type transition and spontaneous current induced by symmetry breaking in coupled oscillators

15:40-16:00 **Ikkyu Aihara**
Synchronization and frustration in calling behavior of Japanese tree frogs

Chairman **Mikito Toda**

16:20-17:00 **Chil-Min Kim**
Operating characteristics of a spiral-shaped microcavity laser

17:00-17:40 **Ken Umeno**
Designing chaos-enhanced practical applications via solvable chaos

Room 2 (Tuesday, 9 September)

Chairman **Kei Tokita**

10:20-10:50 **Tobias Galla**
Learning to play random matrix games

10:50-11:20 **Youshan Tao**
Mathematical models of tumor growth and treatment

11:20-11:40 **Chi-Ming Chen**
Computer simulations of membrane protein folding using a physical model:
structure, dynamics, and thermodynamics

11:40-12:00 **David Sumpter**
The dynamics of animal groups

Chairman **Jan Wiersig**

13:30-14:00 **Kazuo Takatsuka**
On the divergence of the amplitude factor in semiclassical mechanics:
Quantization of chaos and semiclassics beyond WKB

14:00-14:30 **Henning Schomerus**
Nonexponential decoherence in a quantum Lévy kicked rotator

14:30-15:00 **Akira Shudo**
Chaotic tunneling and dynamical localization

15:00-15:20 **Shuji Miyazaki**
Level dynamics and large deviation analyses

15:20-15:40 **Atsushi Tanaka**
Cheon's eigenspace and eigenvalue anholonomies in quantum maps and a
unification of quantum holonomy

15:40-16:00 **Toshiya Takami**
Controllability and dynamics of generic quantum states driven by an
external field

Room 3 (Tuesday, 9 September)

Chairman **Giulio Casati**

10:20-10:50 **Keiji Saito**
Symmetry in full counting statistics, fluctuation theorem, and nonlinear transport relations under a finite magnetic field

10:50-11:20 **Bambi Hu**
Asymmetric heat conduction in nonlinear systems

11:20-11:40 **Nuo Yang**
Ultralow thermal conductivity of isotope-doped silicon nanowires

11:40-12:00 **Nianbei Li**
Thermal conductivity of dielectric crystals: an exact result from Boltzmann transport equation

Chairman **Atsushi Uchida**

13:30-14:00 **Ingo Fischer**
Dynamics and synchronization of delay-coupled oscillators: Part I: Lasers

14:00-14:30 **Claudio Mirasso**
Dynamics and synchronization of delay-coupled oscillators: Part II: From lasers to neurons

14:30-15:00 **Sheng-Kwang Hwang**
Nonlinear semiconductor laser dynamics for all-optical frequency conversion

15:00-15:20 **Isao Nishikawa**
Chaotic phase synchronization and phase diffusion in systems with many degrees of freedom

15:20-15:40 **Yao-Chen Hung**
A new approach to chaotic communication

15:40-16:00 **Hiroyuki Someya**
Generation and synchronization of chaos in mutually-coupled vertical-cavity surface-emitting lasers with multiple time-delayed couplings

Room 1 (Wednesday, 10 September)

Chairman **Bambi Hu**

9:00 - 9:40 **Giulio Casati**
Classical and quantum transport: from Fourier law to thermoelectric efficiency

Chairman **Wataru Souma**

10:00-10:30 **Tomaso Aste**
From dynamical correlations to evolving networks and back

10:30-11:00 **Diego Garlaschelli**
Self-organized network evolution coupled to extremal dynamics

11:00-11:20 **Huijie Yang**
Symmetries embedded in spectra of complex networks

11:20-11:40 **Zhu Guimei**
Localization on complex networks

11:40-12:00 **Bing Wang**
Jamming in weighted scale-free gradient networks

12:00-12:20 **Aki-hiro Sato**
Discrimination and clustering methods for multi-dimensional time series of the foreign exchange market based on spectral distances

Chairman **Yoji Aizawa**

13:30-14:00 **Marian Wiercigroch**
Non-smooth dynamics of mechanical systems

14:00-14:30 **Yuzuru Sato**
Random dynamics from time serieses of rotating fluid

14:30-15:00 **Haruo Yoshida**
Necessary condition for super-integrability of Hamiltonian systems with homogeneous potential

15:00-15:20 **Tsuyoshi Mizuguchi**
A new method of searching unstable periodic orbits

15:20-15:40 **Tomasz Kapitaniak**
Dynamics of coin tossing is predictable

Chairman **Ichiro Tsuda**

16:00-16:30 **Seunghwan Kim**
Functional self-organization in brain

16:30-17:00 **Michael Breakspear**
Neuronal masses, clouds and moments: The shaping of neural noise by dynamics

17:00-17:20 **Jun-nosuke Teramae**
Precision of neural coding and noise-induced synchronization of networks of oscillators

Room 2 (Wednesday, 10 September)

Chairman **Kyungwon An**

- 10:00-10:30 **Jan Wiersig**
Quantum chaos in optical microcavities: Goos-Hänchen shift and unidirectional light emission
- 10:30-11:00 **Sang Wook Kim**
Quantum chaos in open systems: localization, exceptional points, and turnstiles
- 11:00-11:30 **Masato Tsujii**
Quasi-compactness of transfer operators for contact Anosov flows
- 11:30-11:50 **Chien Cheng Chen**
Analogous investigation on quantum billiard from vertical-cavity surface-emitting lasers
- 11:50-12:10 **Jung Wan Ryu**
The decay rate and localization of quasibound states in open chaotic systems
- 12:10-12:30 **Wade Naylor**
Dynamical Casimir effect in cavity QED and chaotic signatures?

Chairman **Kenichi Yoshikawa**

- 13:30-14:00 **Alexander Mikhailov**
Nonlinear dynamics in elastic networks and design principles of protein machines
- 14:00-14:30 **Guanrong Chen**
A graph-theoretic approach to network synchronizability analysis
- 14:30-15:00 **Hsuan-Yi Chen**
Force-induced oscillation of actin gels
- 15:00-15:20 **Shuguang Guan**
The development of generalized synchronization on complex networks
- 15:20-15:40 **Hiroyuki Kitahata**
Oscillation and synchronization in the combustion of candles

Chairman **Masaki Sano**

- 16:00-16:30 **Mitsugu Matsushita**
Colony formation in bacteria - experiments and modeling -
- 16:30-17:00 **Yue Ma**
Self-sustained collective oscillation observed in a chain of non-oscillatory cells
- 17:00-17:20 **Chai-Yu Lin**
Renormalization group study of a directed sandpile
- 17:20-17:40 **Naoki Kobayashi**
Random patterns of noncolliding paths on the spatio-temporal planes

Room 3 (Wednesday, 10 September)

Chairman **Haruo Yoshida**

10:00-10:30 **Motomasa Komuro**

Quasiperiodic traveling wave regions in coupled map lattices

10:30-11:00 **Mikito Toda**

From dynamical reaction theory to chaotic itinerancy in multi-dimensional Hamiltonian chaos

11:00-11:20 **Yoshito Hirata**

Reconstruction of multiple driving forces from observations of a driven system

11:20-11:40 **Yi-Chiuan Chen**

Family of Julia sets as orbits of differential equations

11:40-12:00 **Evan Monroig**

Change detection in dynamical systems using prediction models based on output-only phase space reconstruction

12:00-12:20 **Jasmina Tekic**

Bessel-like oscillations of the shapiro steps with the period of the ac force

Chairman **Ingo Fischer**

13:30-14:00 **Peter Davis**

Engines of chaos: Generating information with dynamical devices

14:00-14:30 **Krassimir Panajotov**

Coherence resonance in vertical-cavity surface-emitting lasers: experiment and theory

14:30-15:00 **Fan-Yi Lin**

Characteristic of a semiconductor laser injected by repetitive optical pulses

15:00-15:20 **Hiroyasu Ando**

Dynamic analog memory using adaptive feedback chaos control

15:20-15:40 **Etsushi Nameda**

Simulation study on chaos CDMA wireless communication systems

Chairman **Keiji Saito**

16:00-16:30 **Rainer Klages**

Microscopic chaos, complexity and correlated transport in nanosystems

16:30-17:00 **Baowen Li**

Computation with phonons/heat

17:00-17:20 **Tomoshige Miyaguchi**

Nonlinear responses in hard disk gases

17:20-17:40 **Guy Metcalfe**

Strange eigenmodes for advection-diffusion under chaotic reorientation

Room 1 (Thursday, 11 September)

Chairman **Kensuke Ikeda**

9:00 - 9:40 **Masatoshi Murase**
Endo-exo circulation as an elementary process of life: Towards a new synthesis of Western science and Eastern Philosophy

Chairman **Yasumasa Nishiura**

10:00-10:30 **Masaki Sano**
Nonequilibrium fluctuations and statistical laws in externally controlled colloidal systems

10:30-11:00 **Kenichi Yoshikawa**
Self-running droplet: mode switching on the autonomous motion

11:00-11:20 **Chia-Hei Yang**
Crossover from 2D to 3D behavior for percolation on anisotropic simple-cubic lattices

11:20-11:40 **Meesoon Ha**
Anomalous scaling behavior in polymer thin film growth

Chairman **Ken Umeno**

15:40-16:10 **Kazuyuki Aihara**
Mathematical modelling of nonlinear cancer dynamics in prostate and its application to intermittent hormone therapy

16:10-16:40 **Miguel Sanjuan**
Controlling the uncontrollable: Transient chaos in presence of noise

16:40-17:10 **Kung Yao**
Fractal and multifractal analysis of EM induced random processes

17:10-17:30 **Jesus Seoane**
Phase control of open dynamical systems and excitable systems

17:30-17:50 **Kohei Yamasue**
Control of chaotic sensor oscillation in dynamic-mode atomic force microscopy

17:50-18:10 **Ryo Takahashi**
Band-limited synchronous CDMA using the chaotic orthogonal ICA spreading sequences

Room 2 (Thursday, 11 September)

Chairman **Chil-Min Kim**

10:00-10:30 **How-Foo Chen**
Duplex chaotic encryption using semiconductor lasers subject to optoelectronic feedback

10:30-11:00 **Sze-Chun Chan**
Microwave photonic applications of semiconductor laser nonlinear dynamics

11:00-11:20 **Atsushi Uchida**
Experiment on blind source separation of chaotic laser signals by independent component analysis

11:20-11:40 **Isao Owada**
Experimental and numerical analysis on common-chaotic-signal induced synchronization in semiconductor lasers with optical feedback

11:40-12:00 **E. Padmanaban**
Robust antisynchronization of chaos

Chairman **Kei Tokita**

15:40-16:10 **Satoshi Sawai**
A phase transition to collective behavior in eukaryotic cell populations

16:10-16:40 **Ryo Kobayashi**
A mathematical model of amoeboid locomotion

16:40-17:10 **Kyoung Jin Lee**
Unusual wave dynamics in in vitro populations of cardiac cells and clock cells

17:10-17:30 **Zbigniew Struzik**
Is complexity of heart rate decreased or increased in congestive heart failure

17:30-17:50 **Masayo Inoue**
Conditions for chemotactic behaviors both in single bacterium and in interacting aggregation

17:50-18:10 **Ming-Chya Wu**
An adaptive approach to the prediction of protein secondary structure contents in mutants

18:10-18:30 **Benjamin Pfeuty**
Dynamical principles of mammalian cell fate decision

Room 3 (Thursday, 11 September)

Chairman **Seunghwan Kim**

10:00-10:30 **Seung Kee Han**
Dynamic organization of traveling and spiral waves in human EEG

10:30-11:00 **Ichiro Tsuda**
Temporal metamorphosis as a dynamical mechanism of episodic memory

11:00-11:30 **Hugh Robinson**
Synaptic conductances and spike generation in cortical cells

11:30-11:50 **Chang-Woo Shin**
Noise enhanced synaptic symmetry breaking by spike timing dependent synaptic plasticity

Chairman **Yoshi Fujiwara**

15:40-16:10 **Xiaofan Wang**
Flocking with a virtual leader based on pinning control

16:10-16:40 **Tatsushi Matsubayashi**
Visualization of large-scale complex networks

16:40-17:00 **Yuji Fujita**
A hybrid method of graph drawing; Linear-algebraic and force-directed

17:00-17:20 **Atsushi Ishikawa**
Detailed quasi-balance and non-Gibrat's law in Japanese land prices

17:20-17:40 **Sudhir Jain**
Intermittent and persistent behaviour of financial markets

Room 1 (Friday, 12 September)

Chairman **Tatsuya Uezu**

9:20 - 10:00 **Qi Ouyang**
Anti-waves in the CIMA reaction

Chairman **Yoshi Fujiwara**

10:20-10:50 **Wataru Souma**
Application of random matrix theory to cross-correlation matrices in some phenomena

10:50-11:20 **Yoshi Fujiwara**
Large-scale structure of production network in Japan

11:20-11:50 **Akira Ishii**
Mathematical model of hit phenomena

Chairman **Kunihiko Kaneko**

13:30-14:00 **Sanjay Jain**
Dynamics of large scale biological networks and system level properties of cells

14:00-14:30 **Konstantin Agladze**
Pacing induced drift of free and pinned spiral waves as a mechanism for anti-tachycardia pacing

14:30-15:00 **Masashi Tachikawa**
Acceleration of evolution of multicellular organisms by noise in the developmental process

15:00-15:20 **Toshiyuki Nakagaki**
An amoeba can anticipate a periodic event

15:20-15:40 **Namiko Mitarai**
Collisions and queues in ribosome traffic on mRNAs

15:40-16:00 **Makoto Iima**
Robustness of insect's hovering: how vortex patterns determine flight performance

Chairman **Yoshiki Kuramoto**

16:20-17:00 **Chin-Kun Hu**
Synchronization in coupled nonlinear systems

17:00-17:40 **Takao Ohta**
External forcing and feedback control of nonlinear dissipative waves

17:40-18:00 **Yoji Aizawa**
Closing Remarks

Room 2 (Friday, 12 September)

Chairman **Takao Ohta**

10:20-10:50 **Yasumasa Nishiura**
A role of network of unstable patterns in dissipative systems

10:50-11:20 **Wokyung Sung**
Self-organized polymer dynamics of barrier crossing

11:20-11:40 **Yuko Nagamine**
Spatiotemporal stripe pattern as a product of cross talk between reaction-diffusion and phase-separation in Ag and Sb co-electrodeposition system

11:40-12:00 **Dan Tanaka**
Membrane pattern in swarm oscillators

Chairman **Henning Schomerus**

13:30-14:00 **Kyungwon An**
Turnstile transport in chaotic optical microcavities

14:00-14:30 **Kenju Otsuka**
Spontaneous pattern formation and dynamic effects in thin-slice solid-state lasers with shaped laser-diode pumping

14:30-15:00 **Soo-Young Lee**
Non-Hermitian properties of dielectric microcavities

15:00-15:20 **Jinhyung Lee**
Resonances near the classical separatrix of a weakly deformed circular microcavity

15:20-15:40 **Kazuya Amano**
Experimental observation on fractal patterns of chaotic light scattering in regular-polyhedral mirror-ball structures

Room 3 (Friday, 12 September)

Chairman **Kazuyuki Yoshimura**

10:20-10:50 **Chil-Keung Chan**
Synchronizations in growing heterogeneous media

10:50-11:20 **Tatsuya Uezu**
Dynamical behaviour of phase oscillator network with finite connectivity

11:20-11:40 **Marcel Horning**
Unpinning of pinned spiral wave due to vulnerability in cardiomyocyte monolayers

11:40-12:00 **Yasuhiro Suzuki**
Discrete rule based dynamical Systems (DRDS) for investigation of a chemical reaction systems with few molecular

Chairman **Mikito Toda**

13:30-14:00 **Ralph Abraham**
Chaos, structural stability, and the interpretation of models

14:00-14:30 **Yoji Aizawa**
Universal features of non-stationary chaos

14:30-15:00 **Moo Young Choi**
Master equation approach to skew distributions and criticality

15:00-15:20 **Ken Kiyono**
Non-Gaussian statistics of intermittent fluctuations

15:20-15:40 **Asaki Saito**
Computation of f^{-1} spectral chaos using cubic surds

15:40-16:00 **Nobuyoshi Komatsu**
Numerical irreversibility and instability in self-gravitating small N -body systems