

2015/09/28 作成

Theory of Biomathematics and Its Applications XII -Elucidation of pattern formations in transition processes-

November 24 (Tue.)–27 (Fri.), 2015

Research Institute for Mathematical Sciences (Room No.420)

Chair: Tohru Tsujikawa (University of Miyazaki)

Co-Chair: Koichi Osaki (Kwansei Gakuin University)

Academic Partner: The Japanese Society for Mathematical Biology

Program

November 24 (Tue.)

13:00 ~ 13:10 Opening Address

Contributed Talk

13:10 ~ 13:30 Nariyuki Nakagiri (School of Human Science and Environment, University of Hyogo)

The effects of mass attack of *Platypus quercivorus* on mass mortality of oak trees:

The analysis by lattice model

13:30 ~ 13:50 Shu-ichi Kinoshita (Department of Mathematical Engineering, Musashino University)

The role of self-loop in budding Yeast's cell-cycle network

13:50 ~ 14:10 Yukihiro Nakata (Graduate School of Mathematical Sciences, The University of Tokyo)

Epidemic models by delay equations: waning immunity

14:10 ~ 14:20 **Short Break**

14:20 ~ 14:40 Nariya Uchida (Department of Physics, Tohoku University)

Collective Dynamics of Flagella and Cilia by Hydrodynamic Interaction

14:40-15:00 Tatsuki Mori (Graduate School of Science and Technology, Ryukoku University)

All global bifurcation curves for a cell polarization model

15:00 ~ 15:20 Takuya Sekiguchi, Hisashi Ohtsuki (Japan Society for the Promotion of Science, The Graduate University For Advanced Studies)

Fixation probabilities of strategies for bimatrix games and their applications

15:20 ~ 15:40 **Short Break**

15:40 ~ 16:00 Madoka Nakayama (Sendai National College of Technology)

Bacterial strategies for environmental changes

16:00 ~ 16:20 Hisashi Inaba (Graduate School of Mathematical Sciences, University of Tokyo)

Endemic threshold analysis for the Kermack-McKendrick reinfection model

16:20 ~ 16:40 Tohru Tsujikawa (Faculty of Engineering, University of Miyazaki)

Periodic patterns for a chemotaxis-growth model

November 25 (Wed.)

Contributed Talk

09:20 ~ 09:40 Hiroshi Nishiura (The University of Tokyo)

Estimation of HIV infected individuals using a model with competing risks of diagnosis and illness onset

09:40 ~ 10:00 Yuichiro Miyamatsu (Graduate School of Medicine, The University of Tokyo)

Estimation for the prevalence of syphilis in Japan

10:00 ~ 10:20 Ryo Kinoshita (Graduate School of Medicine, The University of Tokyo)

Mathematical epidemiology of the rubella epidemic in Japan

10:20 ~ 10:40 **Short Break**

10:40 ~ 11:00 Yoji Otani (Graduate School of Environmental and Life Science, Okayama University)

Lyapunov functionals for Virus-Immune Multistrain Models with Delay

11:00 ~ 11:20 Isamu Doku (Department of Mathematics, Saitama University)

Applications of Environment-Dependent Models to Tumor Immunity

11:20 ~ 11:40 Kenji Mizumoto (Graduate School of Arts and Sciences, The University of Tokyo)

Estimating the disease burden associated with seasonal influenza in Japan

11:40 ~ 13:00 **Break for Lunch**

13:00 ~ 13:20 Yuzo Hosonom, Kohei Takebe (Faculty of Sciences, Kyoto Sangyo University, Graduate School of Sciences, Kyoto Sangyo University)

Traveling waves for the predator-prey models arising in the invasion process

13:20 ~ 13:40 Naotoshi Nakamura (RIKEN Quantitative Biology Center)

Bifurcation analysis of a self-organizing signaling system for eukaryotic chemotaxis

13:40 ~ 13:55 **Short Break**

Mini-Symposium “ Collective behaviors and their analysis, from particle to people”

Organizer : Hiroto Shoji (Kyoto Prefectural University of Medicine)

13:55 ~ 14:00 Hiroto Shoji (Kyoto Prefectural University of Medicine)

Opening Address

14:00 ~ 14:30 Hiroto Shoji (Kyoto Prefectural University of Medicine)

Toward mathematical understandings of 3D morphology of two types of veins in Hepatic lobule

14:30 ~ 15:10 Toru Nakamura (Graduate School of Education, The University of Tokyo, Japan Science and Technology, PRESTO)

Laws of behavioral organization in spontaneous physical activities and their alterations in psychiatric disorders

15:10 ~ 15:20 **Short Break**

15:20 ~ 16:00 Yasuhiro Inoue, Taiji Adachi (Kyoto Univ, Institute for Frontier Medical Sciences)

Simulations on epithelial folding using 3D vertex model

16:00 ~ 16:40 Takao Ohta (Department of Physics, University of Tokyo, Toyota Physical and Chemical Research Institute)

Nonlinear dynamics of interacting self-propelled particles

November 26 (Thu.)

Contributed Talk

09:20 ~ 09:40 Koji Harada (Department of Computer Science and Engineering, Toyohashi University of Technology)

A theoretical study on the lethal mutagenesis of HIV-1 by a combination use of a mutagen with antiretroviral drugs

09:40 ~ 10:00 Ryusuke Kon (Faculty of Engineering, University of Miyazaki)

Unboundedness of ultradiscrete host-parasitoid models

10:00 ~ 10:20 Kentarou Fujie (Department of Mathematics, Tokyo University of Science)

Mathematical analysis of a chemotaxis model for tumor invasion

10:20 ~ 10:40 Satoru Morita (Department of Mathematical and Systems Engineering, Shizuoka University)

Condition for coexisting in two-species competition system with environmental fluctuation and dispersion among habitats

10:40 ~ 11:00 **Short Break**

11:00 ~ 11:20 Shun Kurokawa, Yasuo Ihara (Division of Natural Resource Economics, Graduate School of Agriculture, Kyoto University, Department of Biological Sciences, The University of Tokyo)

The fixation probability of social behavior in finite populations

11:20 ~ 11:40 Kouichi Murakami (Faculty of Integrated Arts and Sciences, Tokushima University)

Formula for the normal form of the generalized Hopf bifurcation

11:40 ~ 12:00 Shintaro Kondo (Meiji Institute for Advanced Study of Mathematical Sciences)

A reaction-diffusion system and its shadow system describing harmful algal blooms

12:00 ~ 13:10 **Break for Lunch**

13:10 ~ 13:30 Yusuke Ito (Faculty of Science, Department of Biology, Kyushu University)

Modeling nonrandom HIV-1 co-infection in cell culture

13:30 ~ 13:50 Hiroki Ikeda (Graduate School of Systems Life Sciences, Kyushu University)

Quantifying the antiviral effect of IFN on HIV-1 replication in cell culture

13:50 ~ 14:10 Yusuke Kakizoe (Mathematical Biology Laboratory, Graduate School of Systems Life Science, Kyushu University)

The stoichiometry of CCR5 on HIV-1 entry

14:10 ~ 14:20 **Short Break**

14:20 ~ 14:40 Noriaki Ogawa (RIKEN, Nishina Center / iTHES)

Growing Pattern Selection of Cellular Mosaic in Fish Eyes

14:40 ~ 15:00 Toru Sasaki (Graduate School of Environmental and Life Science, Okayama University)

Asymptotic behavior of virus dynamics with diffusion

15:00 ~ 15:10 **Short Break**

Invited Talk

15:10 ~ 15:50 Joe Yuichiro Wakano (Meiji Institute for Advanced Study of Mathematical Sciences)

Evolutionary branching in deme structured-populations

15:50 ~ 16:00 **Short Break**

16:00 ~ 16:40 Atsushi Yagi (Graduate School of Information Science and Technology, Osaka University)

Forest Growing Patterns and Mathematical Models

November 27 (Fri.)

Contributed Talk

09:30 ~ 09:50 Kenta Odagiri (School of Network and Information, Senshu University)

Escape time over a barrier in chemotaxis models

09:50 ~ 10:10 Masatomo Matsushima, Takuto Nakamura (Faculty of Life and Medical Sciences, Graduate School of Life and Medical Sciences, Doshisha University)

Asymmetric transition phenomenon model of group behavior of a killifish

10:10 ~ 10:30 Takaaki Funo (Kyushu University)

Mathematical model of malaria spread and its application to data analysis

10:30 ~ 10:50 **Short Break**

10:50 ~ 11:10 Toshikazu Kuniya (Graduate School of System Informatics, Kobe University)

Global behavior of a spatially heterogeneous age-structured SIS epidemic model

11:10 ~ 11:30 Tatsuya Sasaki (Faculty of Mathematics, University of Vienna)

Evolution of cooperation and costly incentives in the continuous snowdrift game

11:30 ~ 11:50 Tsuyoshi Kajiwara (School of Environmental and Life Science, Okayama University)

Global stability of the model of infectious disease in vivo