

2014/08/25 作成

# Theory of Biomathematics and Its Applications XI

September 16 (Tue.)–19 (Fri.), 2014

Research Institute for Mathematical Sciences (Room No.420)

Chair: Ryusuke Kon (University of Miyazaki)

Academic Partner: The Japanese Society for Mathematical Biology

## Program

### September 16 (Tue.)

13:00 ~ 13:10 Opening Address

#### Contributed Talk

13:10 ~ 13:30 Yusuke Kakizoe (Kyushu University)

The modeling of single cycle infection of SHIV considering ecliptic phase

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

Analysis and quantifying of viral infection dynamics by mathematical model

13:50 ~ 14:10 Yoji Otani (Graduate School of Environmental Science, Okayama University)

Lyapunov functional for multistrain models with infinitely distributed delay

14:10 ~ 14:25 **Short Break**

14:25 ~ 14:45 Tsuyoshi Kajiwara, Yoji Otani\*, Toru Sasaki (Okayama University, Graduate School of Environmental and Life Science, \*Okayama University, Graduate School of Environmental Science)

Lyapunov functionals for age structured models of immune dynamics

14:45-15:05 Toshikazu Kuniya (Graduate School of System Informatics, Kobe University)

Existence of nontrivial equilibria in epidemic models with spatial and age structures

15:05 ~ 15:25 Isamu Doku (Department of Mathematics, Faculty of Education, Saitama University)

Some integral equations related to a branching model

15:25 ~ 15:40 **Short Break**

15:40 ~ 16:00 Naoyuki Yatsuda (Tokyo University of Science)

Visualization of stability regions of a logistic difference equation with multiple delays

16:00 ~ 16:20 Toru Sasaki (Graduate School of Environmental and Life Science, Okayama University)

On Lyapunov functions/functionals for ecological models

16:20 ~ 16:40 Masataka Kuwamura (Faculty of Human Development, Kobe University)

Turing instabilities in prey-predator systems with dormancy of predators

September 17 (Wed.)

Invited Talk

09:30 ~ 10:30 Takeuchi Yasuhiro (Aoyama Gakuin University, College of Science and Engineering, Department of Physics and Mathematics)

Mathematical modelling of Tumor Immune System Interaction

10:30 ~ 10:40 **Short Break**

10:40 ~ 11:40 Tohru Tsujikawa (University of Miyazaki, Faculty of Engineering)

Pattern formation in a reaction-diffusion-advection system

11:40 ~ 12:50 **Break for Lunch**

Contributed Talk

12:50 ~ 13:10 Ryo Yamaguchi (Department of Biology, Faculty of Sciences, Kyushu University)

Speciation despite gene flow when genetic incompatibility accumulates continuously

13:10 ~ 13:30 Takuya Sekiguchi (The Graduate University for Advanced Studies)

Optimal group composition for efficient division of labor: A cost-benefit analysis

13:30 ~ 13:50 Hiromu Ito (Department of Environment and Energy Systems, Graduate School of Science and Technology, Shizuoka University)

Optimal foraging behavior in stochastic environments

13:50 ~ 14:05 **Short Break**

14:05 ~ 14:25 Satoru Morita (Department of Mathematical and Systems Engineering, Shizuoka University)

Analysis of Risk Spreading Model in a Stochastic Environment

14:25 ~ 14:45 Hiromi Seno (Research Center for Pure and Applied Mathematics, Department of Computer and Mathematical Sciences, Graduate School of Information Sciences, Tohoku University)

Critical patch number problem for the population persistence in multi-patchy environment

14:45 ~ 15:05 Masahiro Anazawa (Dep. of Energy and Environment, Tohoku Institute of Technology)

The degree of habitat patchiness and interspecific competition

15:05 ~ 15:20 **Short Break**

15:20 ~ 15:40 Yuma Sakai (Graduate school of Hokkaido University)

Analysis of disease propagation model on plant

15:40 ~ 16:00 Nariyuki Nakagiri (School of Human Science and Environment, University of Hyogo)

Simulation and spatial pattern formation of *Bacillus subtilis natto*

16:00 ~ 16:20 Kazunori Sato (Graduate School of Engineering, Shizuoka University)

Stability of population dynamics on lattice models

September 18 (Thu.)

Contributed Talk

09:25 ~ 09:45 Shigehide Iwata (Department of Marine Biosciences, Faculty of Marine Science, Tokyo University of Marine Science and Technology)

A consideration of an optimal number for boat allocation under a fluctuating environment

09:45 ~ 10:05 Nakamura Takuto (Doshisha University)

Time-dependent fluctuation on the group of rice-fishes in a closed waterway

10:05 ~ 10:25 Hiro-Sato Niwa (National Research Institute of Fisheries Science)

Dynamics of marine population with Pareto genealogies

10:25 ~ 10:40 **Short Break**

10:40 ~ 11:00 Takamasa Murano (Department of Life Science & Medical Bioscience School of Advances Science and Engineering, Waseda University, Tsuneda labo.)

Constitution of the three-dimensional mathematical model for cell proliferation and differentiation in colonic crypts

11:00 ~ 11:20 Hiroto Shoji (Physics, Medicine, Kyoto Prefectural University of Medicine)

Pattern formation of two types of vein in hepatic lobule

11:20 ~ 11:40 Nakamasu Akiko (Kyoto Sangyo University)

Branched patterns based on the behavior of Turing pattern on non-uniform growing field

11:40 ~ 12:50 **Break for Lunch**

12:50 ~ 13:10 Etsushi Nakaguchi (College of Liberal Arts and Sciences, Tokyo Medical and Dental University)

PDE model for layer process of collagen molecules in regenerating fish scales

13:10 ~ 13:30 S. Seirin Lee (Department of Mathematical and Life Sciences, Hiroshima University)

Mathematical Understanding on Remodeling of Nuclear Architecture of the Rod Photoreceptor Cell

13:30 ~ 13:45 **Short Break**

Mini-Symposium “Mathematical models for pattern formation in nature”

Organizer : Shu-ichi Kinoshita (Musashino University)

13:45 ~ 13:50 Shu-ichi Kinoshita (Musashino University)

Opening Address

13:50 ~ 14:40 Shigefumi Hata (Department of Mathematical Science and Advanced Technology, Japan Agency for Marine-Earth Science and Technology (JAMSTEC))

Oscillatory Turing instability and dispersal-induced extinction in ecological metapopulations

14:50 ~ 15:40 Hiroyuki Ebata, Masaki Sano (Department of Physics, Graduate School of Science, Chiba University, Department of Physics, Graduate School of Science, The University of Tokyo)

Dynamics of self-replicating holes in vertically vibrated suspensions

15:50 ~ 16:20 Kohta Suzuno (Graduate School of Advanced Mathematical Sciences, Meiji University)

The reaction-diffusion visualization

16:25 ~ 16:45 Kaori Sugimura (Ochanomizu University)

Statistical properties of spiral chaos in excitable medium

September 19 (Fri.)

Contributed Talk

09:30 ~ 09:50 Hiroshi Nishiura, Kiesuke Ejima (Graduate School of Medicine, The University of Tokyo)  
Estimation of HIV infected individuals in Japan using a mathematical model

09:50 ~ 10:10 Mizumoto Kenji (Organization for Programs on Environmental Sciences, Graduate School of Arts and Sciences, The University of Tokyo)

Identifying epidemic risk and size of measles outbreak in the Postelimination Era with stochastic modelling

10:10 ~ 10:30 Shinji Nakaoka (Department of Global Health Policy, Graduate School of Medicine, The University of Tokyo)

Mathematical modeling for cancer immunotherapy

10:30 ~ 10:45 **Short Break**

10:45 ~ 11:05 Ryusuke Kon (Faculty of Engineering, University of Miyazaki)

Stability of synchronous periodic orbits in semelparous Leslie models

11:05 ~ 11:25 Yueping Dong (Shizuoka University)

Mathematical theory and biological implications of a tumor immune model

11:25 ~ 11:45 Mitsuo Takase (LINFOPS Inc.)

Toward practical application of tumor-immune system analysis