

Nov 10, 2016

RIMS Workshop: Theory of Biomathematics and Its Applications XIII - Modeling and Analysis for Discrete and Continuous Models -

Date Nov 14 (Mon) - Nov 17 (Thr), 2016
Venue RIMS, Kyoto Univ. (Room No. 420)
Organizer Koichi Osaki (School of Science and Technology, Kwansei Gakuin Univ. and
The Director of Research Center for Mathematical Sciences, Kwansei Gakuin Univ.)
Endorsement The Japanese Society for Mathematical Biology

Program

Nov 14 (Mon)

12:55 ~ 13:00 Opening Address

Contributed Talk

13:00 ~ 13:20 Ichiro K. Shimatani(The Institute of Statistical Mathematics)

Synchronized modeling for reproductive movements and parameter estimation by AKB algorithm

13:20 ~ 13:40 Sho Kato and Satoru Morita(Shizuoka University)

Evolutionary game considering intra-cell and inter-cell interactions

13:40 ~ 14:00 Isamu Doku(Department of Mathematics, Faculty of Education, Saitama University)

Survival property for superprocesses and its application to models

14:00 ~ 14:20 Masakazu Akiyama and Takamichi Sushida(Research Institute for Electronic Science, Hokkaido University)

A mathematical model of cell polarity and cell migration

14:20 ~ 14:30 **Short Break**

14:30 ~ 14:50 Mitsuo Takase(LINFOPS Inc.)

In cut tail reproduction model, its reformation according to Homeotic genes, tumor production and its detection by immune system

14:50 ~ 15:10 Naohiro Okamoto(Doshisha University Graduate School of Life and Medical Sciences)

Particle method simulation for the construction of the blood flow model

15:10 ~ 15:30 Ryosuke Kono(Doshisha University Graduate School of Life and Medical Sciences)

Analysis of the synchronization phenomena to be caused by the network circuits

15:30 ~ 15:40 **Short Break**

15:40 ~ 16:00 Daisuke Shikayama(Graduate School of Integrated Science and Technology Department of Engineering Mathematical and System Engineering course, Shizuoka University)

Improvement of the overestimation for invasion speed in higher birth-rate population

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

Patch models of lake ecosystem

16:20 ~ 16:40 Ryusuke Kon(Faculty of Engineering, University of Miyazaki)

A dynamic dichotomy for semelparous Leslie matrix models

Nov 15 (Tue)

Contributed Talk

9:10 ~ 9:30 Takuji Oba and Jun Kigami(Graduate School of Informatics, Kyoto University)

When does invasion implies substitution?

9:30 ~ 9:50 Atsushi Okamoto and Tsuyoshi Kajiwara(Graduate School of Environmental and Life Science, Okayama University)

Global stability of an age-structured model for epidemics

9:50 ~ 10:10 Syunpei Takemura and Tsuyoshi Kajiwara(Graduate School of Environmental and Life Science, Okayama University)

Analysis of non-symmetric replicator equations

10:10 ~ 10:30 Yusuke Kumagai and Tsuyoshi Kajiwara(Graduate School of Environmental and Life Science, Okayama University)

Competition in chemostat with two resources

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

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

Global stability of age-structured model of multi-strain pathogen-immune interaction

11:00 ~ 11:20 Ryohei Saito(Graduate School of Mathematical Sciences, University of Tokyo)

Mathematical analysis of an age-structured population model for demographic transition

11:20 ~ 11:40 Yoji Otani(Graduate School of Environmental and Life Science, Okayama University)

Global stability for an SEIR multigroup model with infinite delay

11:40 ~ 12:00 Toshikazu Kuniya(Graduate School of System Informatics, Kobe University)

Global asymptotic stability of epidemic models with diffusion terms and space-dependent coefficients

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

13:00 ~ 13:20 Yusuke Ito(Mathematical biology laboratory, Graduate school of system life science, Kyushu univ.)

The number of infection events per cell during cell-free HIV-1 infection obeys negative-binomial distribution

13:20 ~ 13:40 Yusuke Kakizoe(Systems Life Sciences, Graduate school of Kyushu University)

Modeling to quantify HIV-1 entry process

13:40 ~ 14:00 Kenji Mizumoto(Graduate School of Medicine, Hokkaido University)

Estimating the infection fatality risk associated with influenza in Japan

14:00 ~ 14:20 Hiroshi Nishiura(Graduate School of Medicine, Hokkaido University)

Prioritizing rubella vaccination program by age using two modeling strategies

14:20 ~ 14:30 **Short Break**

Mini-Symposium "Introduction of Ecological Epidemiology"

Organizer: Shingo Iwami(Department of Biology, Kyushu University; JST PRESTO)

14:30 ~ 14:40 Opening Address

14:40 ~ 15:00 Takaaki Funo(Department of Biology, Faculty of sciences, Kyushu University)

Correlation between Malaria cases and rain fall

15:00 ~ 15:30 Marko Jusup(Hokkaido University, Research Institute for Electronic Science)

Pattern formation and pattern transitions in spatial epidemiology

15:30 ~ 15:40 **Short Break**

15:40 ~ 16:10 Yuuya Tachiki(Institute for Virus Research, Kyoto University; Department of Biology, Kyushu University)

The Evolution of influenza virus driven by immunological memory

16:10 ~ 16:40 Yuya Miyazaki(clustium Inc.)

Potential of ecological simulation game

Nov 16 (Wed)

Contributed Talk

9:30 ~ 9:50 Tatsuya Kurusu(Department of Biology, Faculty of Sciences, Kyushu University)

Modeling Hepatitis B Virus entry

9:50 ~ 10:10 Shoya Iwanami(Kyushu University)

Mathematical model of hematopoietic system with myeloid bypass

10:10 ~ 10:30 Kousaku Kitagawa(Kyushu University)

Multiscale model of HCV infection and its reduction to ODE

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

10:40 ~ 11:00 Shun Kurokawa(Kyoto University; Institute of Zoology, Chinese Academy of Sciences)

Evolution of stubbornness

11:00 ~ 11:20 Masaaki Mizukami(Department of Mathematics, Tokyo University of Science)

Global existence and asymptotic stability in a two-species chemotaxis-competition system

11:20 ~ 11:40 Nariyuki Nakagiri*, Shuhei Hagino* and Yukio Sakisaka**(School of Human Science and Environment University of Hyogo*; Division of Early Childhood Care and Education, Nakamura Gakuen University Junior College**)

Growth Pattern of Colony in *Bacillus subtilis* natto: effects by environmental conditions

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

12:50 ~ 13:10 Tohru Tsujikawa(Faculty of Engineering, University of Miyazaki)

Propagating pulses in *E. coli* patterns

13:10 ~ 13:30 Horibe Kazuya(Osaka University Graduate School of Information Science and Technology)

Curvature-driven splitting of a planar traveling wave

13:30 ~ 13:40 **Short Break**

Mini-Symposium “Toward Biomathematics of Insects –Termite, Honeybee, and *Drosophila*–”

Organizer: Takayuki Narumi (Faculty of Engineering, Kyushu Sangyo University)

13:40 ~ 13:45 Opening Address

13:45 ~ 14:25 Keita Endo(Laboratory for Circuit Mechanisms of Sensory Perception, RIKEN BSI)

Sparse coding of the odor information in the *Drosophila* mushroom body

14:25 ~ 15:05 Osamu Yamanaka(Department of Mathematical and Life Sciences, Hiroshima University)

Statistical Analysis on Dynamic Division of Labor in Ant Colony using RFID chip

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

15:15 ~ 15:50 Takayuki Narumi(Faculty of Engineering, Kyushu Sangyo University)

An agent model for the first process of honeycomb construction

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

Invited Talk

16:00 ~ 16:50 Hisao Honda(Kobe University Graduate School of Medicine)

Mathematical Models are indispensable to bridge between genes and morphogenesis

Nov 17 (Thr)

Contributed Talk

09:40 ~ 10:00 Kenta Odagiri(School of Network and Information, Senshu University)

Dynamics of chemotactic agents in inhomogeneous environment

10:00 ~ 10:20 Hiroataka Kanazawa(Kyoto Prefectural University of Medicine)

Some considerations about a mathematical structure of a renal tube morphology

10:20 ~ 10:40 Nariya Uchida(Department of Physics, Tohoku University)

Collective motion of bacteria at solid-fluid interfaces

10:40 ~ 10:50 **Short Break**

10:50 ~ 11:10 Hiroto Shoji(Kyoto Prefectural University of Medicine)

Morphological changes in hepatic lobule of fatty liver

11:10 ~ 11:30 Martyushev Alexey(Department of Biology, Faculty of Science, Kyushu University)

Mathematical modeling of infectious diseases

11:30 ~ 11:50 Yasuhisa Saito(Department of Mathematics, Shimane University)

Global stability and limit cycle in predator-prey interactions with indirect effect

11:50 ~ 12:00 Closing Address