Tokyo Tech - Imperial workshop 2

日時：2018 年 4 月 12 日（木）〜4 月 19 日（木）
場所：すずかけ台キャンパス、S1 棟

プログラム：
11:00-11:05 (S1-203) Opening
11:05-11:35 (S1-203) Hayato Goto:
   "Modeling Evolution of BusinessNetwork and Their Interaction"
11:35-14:00 (S1-second floor) Poster session with lunch (S1-203)
14:00-15:15 (S1-317-2) Murat Erkurt:
   "Emergence of Form in Embryogenesis"
15:30-16:45 (S1-317-2) Mauricio Barahona:
   "Graph partitioning and community detection based on dynamics"
16:45-18:00 (S1-second floor) Poster session with beer (S1-203)

Abstract:Murat Erkurt:
Development of form in an embryo is the result of a series of symmetry breakings starting from topological and informational singularity of the zygote. Pattern generating reaction-diffusion systems are not capable of form generation, as they are locally isotropic. We introduce Vector-Reaction-Diffusion-Drift system based on three new concepts: source-field coupling, local drift for global symmetry breaking and vector morphogens as pillars of form. An integrated model with topological, physical, chemical and regulatory layers is presented. Simulation of blastula moving into gastrulation shows realistic form generation as an emergent phenomenon of the ensemble of locally interacting identical cells. We further expand our model by introducing Dynamical Cell Differentiation where the regulatory genome is generalized into a finite-state-machine. This allows symmetry breakings to be choreographed into sub-spatial domains resulting in further detailed form generation.

Posters (to be posted until 20th)
●A. Matsuo: "Power-Law Distributions from Sigma-Pi Structure of Sums of Random Multiplicative Processes"
●E. Takagi: "Category classification of Information diffusion in Blogosphere network based on degree of similarity between documents"
●G. Sakoda: "Parameter estimation method for non-stationary Poisson time series with fluctuation scaling and incomplete observation"
●T. Hamano: "Dealer model of foreign exchange market with finite assets"
●T. Sueshige: "Ecology of Forex market: Human vs. Artificial Intelligence"
●Y.Kobayashi: "Evolutionary Flow and Scaling Laws of Business Firms in 3-dimensional State Space"
●J.-F. Boilard: "Market Microstructure Analysis of Limit Orders in FX Market"
●Y. Shida: "Deriving mass human mobility patterns from individuals location data"
●K. Kanazawa: "Boltzmann Equation for Financial Brownian Motion"

●J.Ozaki: "Instability of money transport on inter-firm trading network"
●F. Rosas: TBA
●T. Nozawa, M. Kondo, R. Yamamoto, H. Jeong, S. Ikeda, K. Sakaki, Y. Ishikawa, Y. Miyake,
R. Kawashima: "Shared subjective experience and interpersonal neural synchronization in
foreign language active learning classroom: a pilot study"
●K. Ogawa, Y. Miyake: "Robust patterning of gene expression based on
internal coordinate system of cells"
●H. Ora, Y. Miyake: "A method for prediction of behavioral errors from single-trial
electrophysiological data"
●S. Amano, K. Ogawa, Y. Miyake: "Node property of weighted networks
considering connectability to nodes within two degrees of separation"
●T. Mukai, T. Terano: "Effects of Trade Environment in the Decentralized
Inter-firm trade Structure Model through Agent Simulation"
●P. Holme, L. Tupikina: "Computational epidemiology without random numbers: Insights from
the 12,110 smallest graphs"
●T. Ohsato, K. Akagi, H. Deguchi: "Developing an Input-Output Table Generation Algorithm
using a Japanese Trade Database: Dealing with Ambiguous Export and Import Information"

More Talks

13th Friday Talks (S1-203)
15:00-16:00 Kiyoshi Kanazawa:
" Boltzmann Equation for Financial Brownian Motion"
16:00-17:00 Junichi Ozaki:
"Simulation and growth prediction of Japanese inter-firm trading network"

16th Monday Talk (S1-203)
14:00-15:30 Kenta Yamada:
"Dynamics of word popularity observed from large scale social data"

19th Thursday Talks (S1-203) or(S1-317-2)
11:00-12:00 (S1-203) Yukie Sano:
"Long-term periodic cycles and memories of collective emotion"
14:00-15:30 (S1-317-2) Henrik J. Jensen:
"Analysis of EEG response from musicians and audience during performances:
improvisation versus non-improvisation"
15:45-16:45 (S1-317-2) Tim Evans:
"Networks and Space-time"
16:45-17:30 (S1-317-2) Paul Expert:
" Spectral signature of artificial and real dynamical systems"