

50th NIBB conference Structure and Dynamics of Complex Biological Networks

**Organizing Chair : Atsushi Mochizuki
February 8 (Tue) -10 (Thu), 2005**

Thanks to progress in molecular genetics technologies the past several years have seen rapid increases in the amount of biological information available to us; the next order of business, therefore, is to find the essential principles of higher-order phenomena in biology hidden within enormous amounts of information. Non-experimental methods are now attracting attention as new methods for integrating information or for understanding whole systems of biology. Many researchers from physics, mathematics and computer science are starting to grapple with problems in biology.

Enhanced interaction between researchers working in different disciplines is essential for progress in theoretical methods in biology. For this purpose we held an international conference on February 2005 in Okazaki, Japan. For this conference we called researchers studying various biological phenomena, network systems,

spatio-temporal patterns, ecology and evolution using different theoretical methodologies, with a special focus on the network structures in different fields of biology, including gene regulation, metabolic pathway and ecology. One of the notable themes was the relation between the structural and dynamic behaviors of these complex systems.

The conference featured 39 research presentations including 8 short talks and 12 poster presentations. Ninety one participants – including 12 reseachers from foreign countries - enjoyed discussions and the interaction between different fields of theoretical biology. We have received many mails from participants thanking us for holding this conference. We hope that this conference leads to the start of a new theoretical bioscience in the future.

Scientific topics:

Network systems in biology

Mathematical property of network
Application and understanding for biological network

Regulations in cells, tissues and organisms

Dynamical regulation in metabolism or cellular systems
Morphogenesis in development

Ecology and evolution

Dynamics in ecological network system



Speakers

AKUTSU, Tatsuya	(Kyoto University, Japan)
ALBERT, Réka	(Pennsylvania State University, USA)
ALMAAS, Eivind	(University of Notre Dame, USA)
ALVAREZ-BUYLLA, Elena Rocés	(Universidad Nacional Autonoma de Mexico, Mexico)
ARITA, Masanori	(University of Tokyo, Japan)
CHING, Wai Ki	(University of Hong Kong, China)
CRACIUN, Gheorghe	(Ohio State University, USA)
IWASA, Yoh	(Kyushu University, Japan)
KANEKO, Kunihiko	(University of Tokyo, Japan)
KING, Ross	(University of Wales, UK)
KONDO, Shigeru	(Riken, Kobe / Nagoya University, Japan)
MARTINEZ, Neo	(Pacific Ecoinformatics and Computational Ecology Laboratory, USA)
MOCHIZUKI, Atsushi	(National Institute for Basic Biology, Japan)
MURATOV, Cyrill	(New Jersey Institute of Technology, USA)
NAKAI, Kenta	(University of Tokyo, Japan)
PAULSSON, Johan	(University of Cambridge, UK)
REINITZ, John	(Stony Brook University, USA)
TOKITA, Kei	(Osaka University, Japan)
VERT, Jean-Philippe	(Ecole des Mines de Paris, France)