

## **Program**

**Oct.16 (Fri.) 9:00~12:00**

**Chair: Jevin West (Department of Biology, University of Washington)**

**9:00~9:05** Opening Address

Kazuo Nishimura (Institute of Economic Research, Kyoto University)

**9:05~9:15** Introductory Remarks

Masatoshi Murase (Yukawa Institute for Theoretical Physics, Kyoto University)

Evolution as a double-edged sword

**9:15~12:00 “Neural & Modeling Session”**

**9:15~9:30**

Ichiro Tsuda (Hokkaido University & International Institute for Advanced Studies)

TBA

**9:30~10:20**

Dirk De Ridder (University Hospital Antwerp, Belgium)

A Darwinian Approach to Phantom Perceptions

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

**Chair: Kuniyoshi Ebina (Kobe University)**

**10:40~11:00**

Kazuo Nishimura & Yoshikazu Tobinaga\*

(Institute of Economic Research, Kyoto University, \*Elegaphy)

Measurement of Individuality in the Thinking Patterns

**11:00~11:20**

Myoung Won Cho (Korea Institute for Advanced Study)

Theoretical approach to neural phenomena by using symmetry properties

**11:20~12:00**

Hideyuki Nakashima (Future University Hakodate)

Evolution-theoretic Approach to Synthetic Study of Intelligence

**12:00~13:30 Lunch**

**Oct.16 (Fri.) 13:30~18:30**

**Chair: Shigetoshi Nara(Okayama University)**

**13:30~16:40 “Cellular & Theoretical Session I”**

**13:30~14:10**

Kunihiko Kaneko (University of Tokyo Biology)

Macroscopic relationship among robustness, evolvability, and phenotypic fluctuations

**14:10~14:50**

Ka Yee Lee (The University of Chicago)

How Microbes Evolve to Dodge the Membrane Disruptive Actions of Antimicrobial Peptides

**14:50~15:10 Break**

**Chair: Ichiro Tsuda (Hokkaido University & International Institute for Advanced Studies)**

**15:10~15:40**

Yoshiomi Takagi

On the Origin of Sexual Reproduction — In Relation to Lifespan —

**15:40~16:20**

Yoh Iwasa (Department of Biology, Kyushu University)

Cancer as a mini-evolutionary process

**16:20~16:40 Break**

**Chair: Ka Yee Lee (The University of Chicago)**

**16:40~18:30 “Cellular & Theoretical Session II”**

**16:40~17:20**

Takashi Ikegami (The Graduate School of Arts and Sciences, University of Tokyo)

Homeodynamics, Shape and Motion dynamics in Self-Moving Oil Droplets

**17:20~17:50**

Hiroshi Kokubu (Department of Mathematics, Kyoto University)

A method for constructing databases of global dynamics of multi-parameter systems

**17:50~18:30**

Carl Bergstrom (Department of Biology, University of Washington)

The concept of information in evolutionary biology

**18:30~21:00 Banquet (Hotel Restaurant at the 1-st Floor)**

**Greeting Address: Hyungtae Kook (Kyungwon University & APCTP)**

## **Program**

**Oct.17 (Sat.) 9:00~12:00**

**Chair: Yoshiomi Takagi**

**9:00~12:00 “Molecular & Dynamical Session”**

**9:00~9:40**

Massimo Di Giulio (Laboratory for Molecular Evolution, Institute of Genetics and Biophysics)

The origin of the tRNA molecule

**9:40~10:20**

Akio Kanai (Institute for Advanced Biosciences, Keio University)

System Biology of Archaeal RNAs and RNA-Binding Proteins

Junichi Sugahara (Institute for Advanced Biosciences, Keio University)

Disrupted tRNA gene diversity and possible evolutionary scenarios

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

**Chair Kunihiro Kaneko (University of Tokyo and ERATO Complex Systems Biology)**

**10:40~11:20**

Katsumi Imada (Graduate School of Frontier Biosciences, Osaka University)

Structure of the bacterial flagellum and its evolutionary relation to other biological molecular machines

**11:20~12:00**

Mikhail A. Fedonkin (Institute of Geochemistry and Analytical Chemistry, Russian Academy of Sciences)

Physical aspects of early life evolution

**12:00~12:20**

Jevin West (Department of Biology, University of Washington)

Traversing Fitness Landscapes by Changing Environments

**12:20~14:00 Lunch**

**Oct.17 (Sat.) 13:30~17:35**

**Chair: Carl Bergstrom (Department of Biology, University of Washington)**

**14:00~15:30 “Human & Cultural Session I”**

**14:00~14:30**

Marta Ortega-Llebaria, Barbara Davis and Jie Yang  
(University of Texas at Austin)

Emergent Complexity in Speech Acquisition:  
Applications to Evolution of the Speech Capacity

**14:30~15:00**

Seung Kee Han (Department of Physics, Chungbuk National University)

Dynamic Evolution of the Human Knowledge System in a Textbook

**15:00~15:30**

Cynthia Trevisan (The California Maritime Academy, California State  
University)

The Descent of Science: How Quantum Mechanics is Shedding  
Light on the Interaction of Light and Matter

**15:30~15:50 Break**

**Chair: Hideyuki Nakashima (Future University Hakodate)**

**15:50~18:15 “Human & Cultural Session II”**

**15:50~16:20**

Peter Davis (Telecognix Corporation)  
Modeling Communicating Systems: Hybrid Man-machine Systems  
and their Evolution

**16:20~16:50**

Yukio-Pegio Gunji (Faculty of Science, Kobe University)  
Life with indefinite boundary between micro- and macro-perspectives

**16:50~17:30**

Ryohei Nakatsu (Interactive & Digital Media Institute, National  
University of Singapore)

Communication and Its Future

**17:30~18:10**

Matthias Rauterberg (Technical University)  
From genes to memes: Culture as an evolutionary arena.

**18:10~18:15 Closing Address**

Masatoshi Murase (Yukawa Institute for Theoretical Physics, Kyoto University)