

* 一部のプログラム「17日の夕食、18日午後の special session」は招待講演者及び関係者のみ参加可能になっております。一般参加者にはご理解宜しくお願いいたします。

17th May (Thursday)

16:00~18:00 Registration

18:00~20:00 Welcome Dinner with invited speakers (関係者のみ)

18th May (Friday)

9:10~9:20 Opening

Session 1 (9:20~11:25)**Cell dynamics and Data analysis**

Chair: Lei Zhang

9:20~10:10 **Luonan Chen** (Chinese Academy of Sciences)
Detecting Causality from Nonlinear Dynamics with Short-term Time Series

10:15~10:25 Break

10:25~10:55 **Jaeyoung Sung** (Chung-Ang University)
The chemical fluctuation theorem governing gene expression

11:00~11:30 **Tiejun Li** (Peking University)
Rare event study for the S-phase checkpoint activation of the budding yeast cell cycle

11:35~12:50 Lunch Break

Chair: Jae Hun Jung

12:50~13:20 **Cheol-Min Ghim** (UNIST)
Structural antitrust for the emergence of cooperation

13:25~13:55 **Yan Yan** (Hong Kong University of Science & Technology)
From lateral inhibition to single cell delamination

14:00~14:10 Break

Session II (14:10~15:20)

From Biology to Robotics via Mathematical biology

Chair: Ryo Kobayashi

14:10~14:40 **Hitoshi Aonuma** (Hokkaido University)
Oscillator model to understand group size dependent behavior in the cricket

14:45~15:15 **Yasufumi Yamada** (Hiroshima University)
Acoustic navigation strategy of the echolocating bats during obstacle avoidance flight

15:20~15:30 Break

Special Session (15:30~20:00)

(関係者のみ)

15:30~17:30 Special session of cell cooperative dynamics between *aspergillus oryzae* and *sake yeast* in Saijo area

17:30~20:00 Discussions and Dinner with invited speakers

19th May (Saturday)

Session III (9:10~12:40)**Phase-field Method and Developmental Biology**

Chair: Masakazu Akiyama

9:10~10:00

Ryo Kobayashi (Hiroshima University)

Phase Field Method and Its Applications

10:05~10:35

Lei Zhang (Peking University)

Computable modeling of complex biological systems - from Gene network to cellular systems

10:40-10:55

Break

Chair: Tiejun Li

10:55~11:25

Sungrim Seirin-Lee (Hiroshima University)

Cell, shape, pattern formation, and the modeling tool for describing all of them.

11:30~12:00

Masakazu Akiyama (Hokkaido University)

A mathematical model of 3D collective cell migrations using phase-field model

12:05~12:35

Seunggyu Lee (NIMS)

Mathematical model of contractile ring-driven cytokinesis in a three-dimensional domain

12:40~14:30

Lunch Break

Session IV (14:30~16:50)

Disease and Systems biology

Chair: Jae Kyoung Kim

14:30~15:20 **Kwang-Hyun Cho** (KAIST)
Network dynamics-based classification of cancer panel for precision
Medicine

15:25~15:35 Break

15:35~16:05 **Ching-Shan Chou** (Ohio State University)
Parameter uncertainty quantification using surrogate models applied
to a spatial model of yeast mating polarization

16:10~16:40 **Jae Hun Jung** (Ajou Uni./SUNY Buffalo)
Topological data analysis of vascular disease

16:45~17:00 Break

Chair : S. Seirin-Lee

17:00~17:30 Short talks of poster presentation (10 posters x 2 mins)

Poster Session & Banquet (17:30~21:00)

17:30~18:30 Poster presentations and Special drinks for a lively discussion

18:30~21:00 Discussions & Banquet

20th May (Sunday)

Session V (9:10~11:50)

Gene and Cell dynamics

Chair: S. Seirin-Lee

- 9:10~10:00 **Eamonn Gaffney** (University of Oxford)
Applications of mechanism based mathematical modelling in the pharmaceutical sector
- 10:05~10:35 **Hao Ge** (Peking University)
Inference of dynamic networks via repeated cross-sectional data
- 10:40~11:10 **Jae Kyoung Kim** (KAIST)
Inference of network structure underlying the circadian clock in brain
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- 11:15~11:50 Free discussion with coffee and Closing
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Poster Presentations

- P1. **Masaaki Nomata**, Mathematical model and Optimal policy for decreasing Japanese empty homes (Akiya) due to an aging society
- P2. **Tongkai Li**, Understanding lysis-lysogeny problem through transition path theory and markov state models
- P3. **Hyundong Kim**, Efficient 3D Volume Reconstruction from a Point Cloud Using a Phase-Field Method
- P4. **Tomohiro Nakahara**, The role of cytoplasmic proteins on cell polarity formation of asymmetric cell division
- P5. **Wei Zhao**, Network design principle for dual function of adaptation and noise attenuation
- P6. **Takahiro Hiraga**, A mathematical model of real time flight path planning for echolocating bats
- P7. **Seokjoo Chae**, Network inference of circadian clock
- P8. **Kyosuke Umeyama**, Experimental study of spatially localized bioconvection : Dynamics of cell number density and flow structure
- P9. **Hiroto Shoji**, Directionalities of Microstructures in Hepatic Lobule
- P10. **Jaehyung Hong**, Sleep-wake up cycle modeling

*11：45 中国参加者 タクシーで西条駅（12:18のリムジン）

*12：00 韓国参加者 タクシーで東広島駅（12:43の新幹線）