

International Workshop on Statistical-Mechanical Informatics 2009

13th September

9:30 – Registration

10:30 – 10:40 **Yoshiyuki Kabashima** (DEX-SMI Head Investigator):

Opening

10:40 – 11:20 **Matthias Seeger** (MPI for Informatics and Saarbruecken University, Germany):

Sparse linear models: variational approximate inference and Bayesian experimental design

11:20 – 12:00 **Magnus Rattray** (University of Manchester, UK):

Inference algorithms and learning theory for Bayesian sparse factor analysis

12:00 – 14:00 Lunch Time & Free discussion

14:00 – 14:40 **Shigeyuki Oba** (Kyoto University, Japan):

Differential gene detection incorporating common expression patterns

14:40 – 15:20 **Ichiro Takeuchi** (Nagoya Institute of Technology, Japan):

Metric learning for DNA microarray data analysis

15:20 – 16:00 Coffee Break & Free Discussion

16:00 – 16:40 **Koji Hukushima** (University of Tokyo, Japan):

A statistical-mechanical study of evolution of robustness in noisy environment

16:40 – 17:20 **Masato Inoue** (Waseda University, Japan):

Grouping preprocess for haplotype inference from SNP and CNV data

14th September

9:40 – 10:20 **Faming Liang** (Texas A&M University, USA):

Monte Carlo dynamically weighted importance sampling for spatial models with intractable normalizing constants

10:20 – 11:00 **Stefano Panzeri** (Italian Institute of Technology, Italy):

On the presence of high-order interactions among somatosensory neurons and their effect on information transmission

11:00 – 11:40 **Shiro Ikeda** (Institute of Statistical Mathematics, Japan):

Capacity of a single spiking neuron

11:40 – 12:20 **Nigel G. Stocks** (University of Warwick, UK):

The role of stochasticity in an information-optimal neural population code

12:20 – Lunch Time & Free Discussion

15th September

10:00–10:40	Toru Aonishi (Tokyo Institute of Technology, Japan): Is the Langevin phase equation an efficient model for oscillating neurons?
10:40–11:20	Si Wu (Institute of NeuroScience, Shanghai, China): Tracking dynamics of two-dimensional continuous attractor neural networks
11:20–12:00	Masato Okada (University of Tokyo, Japan): Statistical mechanics of attractor neural network models with synaptic depression
12:00–14:00	Lunch Time & Free Discussion
14:00–14:40	Arno Onken (Technische Universität Berlin, Germany): A Frank mixture copula family for modeling higher-order correlations of neural spike counts
14:40–15:20	Elad Schneidman (Weizmann Institute of Science, Israel): How fast can we learn maximum entropy models of neural populations?
15:20–16:00	Masafumi Oizumi (University of Tokyo, Japan): A general framework for investigating how far the decoding process in the brain can be simplified
16:00–16:40	Coffee Break & Free Discussion
16:40–17:20	Remi Monnason (ENS, France): Neuronal couplings between retinal ganglion cells inferred by efficient inverse statistical physics methods
17:20–18:00	Yoichi Miyawaki (ATR, Japan): Visual image reconstruction from human brain activity using a combination of multi-scale local image decoders
18:30–	Banquet

16th September

- 10:00–10:40 **Naoyuki Kamatani** (RIKEN, Japan):
Statistical challenges to genome-wide association studies
- 10:40–11:20 **Ryo Yamada** (Kyoto University, Japan):
How to measure genetic heterogeneity
- 11:20–12:00 **Jun Sese** (Ochanomizu University, Japan):
Discovering large network motifs from complex biological network
- 12:00–14:00 Lunch Time & Free Discussion
- 14:00–14:40 **Koji Tsuda** (National Institute of Advanced Industrial Science and Technology, Japan):
Exhaustive module discovery in biological networks
- 14:40–15:20 **ACC Coolen** (King's College London, UK):
Generating functional analysis of complex formation and dissociation in large protein interaction networks
- 15:20–15:30 **Masato Okada** (General Chair of IW-SMI2009)
Closing