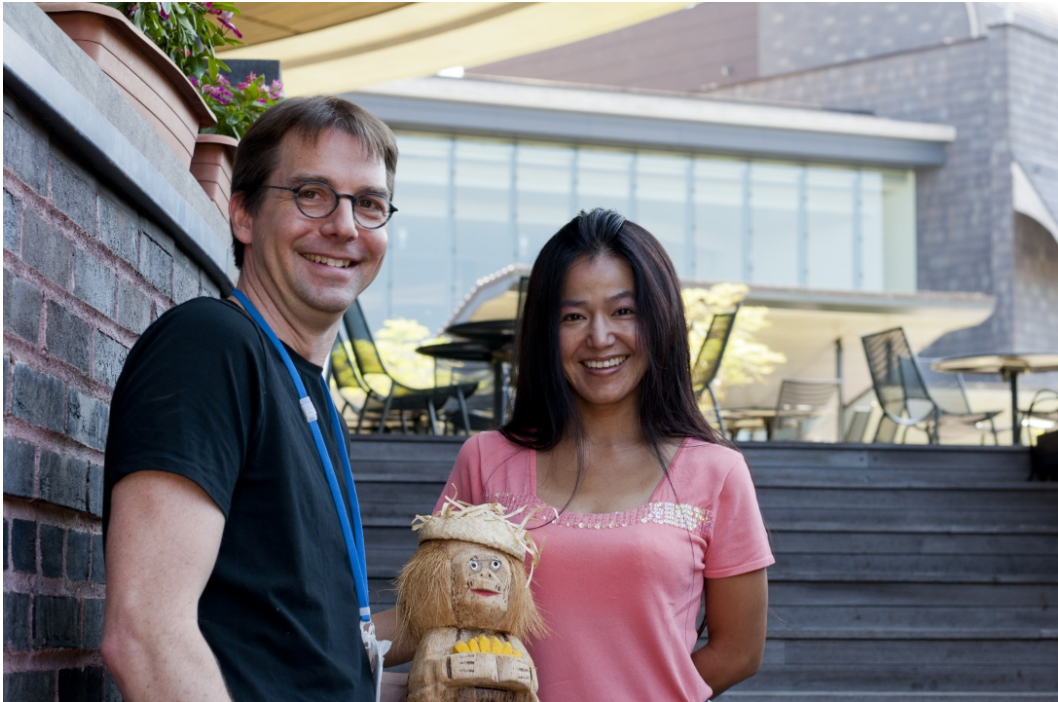


Biological Physics Theory Unit (Greg Stephens)

FY2013 Annual Report



Biological Physics Theory Unit

Assistant Professor (Adjunct) Greg Stephens

1. Members

- Prof. Greg J. Stephens
- Ray Xin Lee, Ph.D. Student
- Tosif Ahamed, Ph.D. Student
- Momoko Zamami, Research Administrator

2. Collaborations

- **Biophysics of Behavior**
 - Type of collaboration: Joint research
 - Researchers:
 - William S Ryu, Associate Professor, University of Toronto
 - Tom Shimizu, Group leader in Systems Biology, AMOLF, Amsterdam
- **Cognitive Neuroscience**
 - Type of collaboration: Joint research
 - Researchers:
 - Uri Hasson, Associate Professor, Princeton University

3. Publications

Stephens, G. J., Honey, C. J., Hasson, U. A Place for Time: The Spatiotemporal Structure of Neural

dynamics During Natural Audition. *Journal of Neurophysiology*, 110(9), 2019-2026.

Helms, S., Avery, L., Stephens, Greg J., Shimizu, T., A Quantitative Model of Motility Reveals Low-Dimensional Variation in Exploratory Behavior Across Multiple Nematode Species. *Bulletin of the American Physical Society*.

4. Oral and Poster Presentations

Invited talks:

Jun 2013

19th International C. elegans Meeting, UCLA, California USA

Sep 2013

Towards a biophysics of organisms: Stochastic dynamics in the reversal motions of C. elegans, Research Center for Complex Systems Biology, University of Tokyo

Nov 2013

Centre for Behaviour and Neurosciences, University of Groningen, The Netherlands

Mar 2014

COSYNE Workshop - From the Actome to the Ethome: System, Neuroscience of Behavioral Ecology, APS Focus Session; Physics of Behavior, Denver, Colorado, USA

Mar 2014

Behavioral Neurogenetics of larval /Drosophila/:Molecules, Circuits, Computation & Robotics, Atami Japan

Mar 2014

Interaction and Collective Movement Processing, Schloss Dagstuhl, Germany

Poster presentation:

Nov 2013

Society for Neuroscience 2013, San Diego, California USA

5. Meetings and Events

Research Visits

Visiting Scholars:

May 2013 Prof. Herbert Levine, Department of Bioengineering, Centre for Theoretical Biological Physics, Rice University

Sep 2013 Dr. Pierre-Etienne Meunier, Visiting Post-doc Researcher, Caltech

Oct 2013 Jonas Chatel-Goldman, GIPSA-lab, Grenoble University, France

Dec 2013 Dr. Amir Erez, Department of Physics, Ben Gurion University

Conference/Workshop:

Apr 2013

Joint Seminar, Institutes of Medical Psychology and Clinical Radiology at the Institute for Medical Psychology, Ludwig Maximilian University of Munich, Germany (Organiser)

May 2013

OIST Integrative Biology, Okinawa, Japan (Lecturer/Co-organiser)

Jun 2013

OIST Computational Neuroscience Course, Okinawa, Japan (Lecturer)

Mar 2014

APS Meeting, Denver, Colorado, USA (Organiser)

Seminars

Seminar hosted:

May 2013 Collective Behaviour in Microorganism Colonies by Prof. Herbert Levine

Sep 2013 Algorithms everywhere! by Dr. Pierre-Etienne Meunier

Oct 2013 Brains and Bodies on the Same Wavelength: the Neuroscience of Social Interaction by Jonas Chatel-Goldman

Dec 2013 The superconductor to insulator transition in thin films by Dr. Amir Erez