



HeKKSaGOn
CONSORTIUM



UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

ACROSS DISCIPLINES AND CULTURAL DIFFERENCES CROSSING BORDERS: UNRAVELING PRINCIPLES OF LIFE WITH QUANTITATIVE TOOLS

2012 SUMMER SCHOOL OF THE HeKKSaGOn CONSORTIUM
HEIDELBERG UNIVERSITY, KYOTO UNIVERSITY, KARLSRUHE INSTITUTE OF TECHNOLOGY,
TOHOKU UNIVERSITY SENDAI, UNIVERSITY OF GÖTTINGEN, OSAKA UNIVERSITY
HEIDELBERG UNIVERSITY, SEPTEMBER 17-26, 2012

Date: 17-26 September 2012

Venue: HCA Heidelberg Center for American Studies, Hauptstr. 120, 69117 Heidelberg

PROGRAM

SUNDAY 16 SEPTEMBER 2012

HCA

17:00 – 18:00 Welcome information desk

MONDAY 17 SEPTEMBER 2012

HCA

09:00 – 09:30 Poster set up

09:30

Opening

Welcome

Announcements

Prof. Thomas Holstein, Prof. Motomu Tanaka

10:00

Introduction of Participants

11:00

Prof. Erich Sackmann

“Physic and functions of cell adhesion: Lections learned from model membrane studies”

12:00 – 13:00

Lunch break

13:00 – 14:30

Crash Courses “Survival Japanese” – “Survival German”

14:30 – 15:30

Prof. Thomas Holstein

“Wnt signaling and de novo pattern formation in hydra”

15:30 – 15:45

Coffee break

15:45 – 16:45

Prof. Motomu Tanaka

“Physical modeling of diseases and development by quantitative functionalization of soft interfaces”

18:00 – 20:00

Welcome Reception (Shimadzu Dinner)

Haus Buhl, Hauptstr. 232-234

Welcome Speech: Vice Rector Prof. Dr. Thomas Rausch

TUESDAY 18 SEPTEMBER 2012

HCA

- 09:30 **Prof. Norio Nakatsuji**
“Cell-material integration for stem cell research at iCeMS, and how I began to enjoy multidisciplinary research in 1980s”
- 10:30 **Dr. Johann Engelhardt**
“Diffraction-unlimited fluorescence microscopy”
- 11:30 **Prof. Izumi Takagi**
“From metaphors to models, or top-down vs. bottom-up approaches”
- 12:30 – 13:30 Lunch break
- 13:30 **Prof. Marciniak-Czochra**
“Mathematical approaches to understand biological pattern formation”
Transfer to Neuenheimer Feld 267
- 16:00 **BIOQUANT, Greenier Room**
Vice-Rector Prof. Thomas Rausch
“BioQuant and the institutes of the Science Campus”
- 16:45 **Visit of BioQuant Core Facilities ‘Nikon Imaging Center’ and ‘Electron Microscopy’ (in small groups)**

WEDNESDAY 19 SEPTEMBER 2012

HCA

- 12:30 – 13:00 **Dr. Fernanda Rossetti**
“Model cell membranes: interfacial interactions with solid substrates and living tissue sheets”
- 13:00 – 15:45 **Presentation of PhD projects by students and poster session (1) [\(LINK\)](#)**
Coffee break integrated
- 16:00 – 18:30 **Heidelberg Sightseeing**
Guided tour of University, Old Town and Castle of Heidelberg
Meeting point: in front of the Neue Universität

THURSDAY 20 SEPTEMBER 2012

- 08:30 Departure: Uniplatz
- 09:00 - 10:45 **Max Planck Institute for Astronomy - Guided tour**
Dr. Markus Pössel
- 10:45 Departure from MPI
- 11:00 – 12:30 **EMBL – Guided tour**
Dr. Takashi Hiiragi
- 12:45 Departure from EMBL
- 14:15 – 15:15 **Dr. Takashi Hiiragi** HCA
“Symmetry breaking in mammalian development”
- 15:15 – 15:30 Coffee break
- 15:30 – 18:30 **Presentations of PhD projects by students and poster session (2) [\(LINK\)](#)**

FRIDAY 21 SEPTEMBER 2012**HCA**

- 09:30 **Prof. C. Schmidt**
"Exploring the boundaries between physics and biology:
single-molecular experiments with mitotic motor proteins"
- 10:30 **Prof. Masaaki Sato**
"Road to biomechanics research and cellular mechanobiology
as my work"
- 11:30 **Discussion with students**
Moderator: Prof. Motomu Tanaka
- 13:00 – 14:00 Lunch break
- 14:00 – 16:55 **Presentations of PhD projects by students & poster session (3) (LINK)**
Coffee break integrated
- 17:00 – 18:00 **Prof. Harald Fuess**
"Transfer of brewery systems from Germany to Japan"
- 18:15 Walk to Kulturbrauerei
- 18:30 **Guided tour and beer tasting, Kulturbrauerei Heidelberg**

SATURDAY 22 SEPTEMBER 2012**HCA**

- Cultural/Social framework program (optional):
Visit to Mercedes-Benz Museum/Porsche Museum Stuttgart

SUNDAY 23 SEPTEMBER 2012

- Cultural/Social framework program (optional):
Sightseeing tour in the Palatinate and wine tasting

MONDAY 24 SEPTEMBER 2012**HCA**

- 09:30 – 10:30 **Lecture N.N.**
- 10:30 – 11:30 **Prof. Akira Harada**
"Macroscopic self-assembly and self-healing through
molecular recognition"
- 11:30 – 12:30 **Prof. Anthony D. Ho**
"Past achievements, present hope and hype, and future
perspectives of stem cell research"
- 12:30 – 13:30 Lunch break
- Transfer to Neuenheimer Feld 267
- 14:00 – 17:30 **Participation in Workshop "Physics of Active Soft Matters" (LINK)**
BioQuant, Im Neuenheimer Feld 267

TUESDAY 25 SEPTEMBER 2012

KIT

- 09:00 Departure for Karlsruhe
10:00 – 10:30 **Introduction to the KIT Karlsruhe Institute of Technology**
Prof. Martin Bastmeyer
10:30 – 11:15 **Prof. Stefan Bräse**
“Combinatorial synthesis of small molecular entities – natural products, drug delivery and beyond”
11:15 – 12:00 **Prof. Martin Bastmeyer**
“Taking cell adhesion to the third dimension”
12:00 – 12:45 **Dr. Urban Liebel**
“Next generation High Content Screening – from intelligent robotic microscopes to integrated knowledge”
12:45 – 14:00 Lunch break
14:00 – 14:45 **Dr.-Ing. Stefan Giselbrecht**
“Getting SMARTer – From biofunctional surfaces to bioinspired microdevices”
14:45 – 15:30 **Dr. Bastian Rapp**
“Microfluidics et al.: biofunctional interfaces, biosensing and microfluidic device prototyping”
15:30 – 16:00 Coffee break
16:00 – 17:45 **Tour**
18:00 Departure for Heidelberg

WEDNESDAY 26 SEPTEMBER 2012

HCA

- 09:30 – 10:30 **Prof. Takao Ohta**
“Individual and collective motions of self-propelled soft particles”
10:30 – 11:30 **Prof. Kenichi Yoshikawa**
“Emergence of smart structure & function in a cell-sized confinement”
11:30 – 12:30 **Prof. Ulf Diederichsen**
“Artificial peptide topologies as mimetics in biochemistry”
12:30 – 13:30 Lunch break
13:30 – 15:30 **Evaluation and feedback session**
18:00 **Farewell Dinner and Poster Prize Award Ceremony) ([LINK](#))**
Max-Weber-Haus
Ziegelhäuser Landstraße 17

THURSDAY 27 SEPTEMBER 2012

Departure of participants

Supported by

Robert Bosch **Stiftung**

INVITED SPEAKERS

1. Martin Bastmeyer, Prof. Dr., KIT Karlsruhe
2. Stefan Bräse, Prof. Dr., KIT Karlsruhe
3. Ulf Diederichsen, Prof. Dr., University of Göttingen
4. Johann Engelhardt, Dr. rer. nat., Heidelberg University
5. Harald Fuess, Prof. Dr., Heidelberg University
6. Stefan Giselbrecht, Dr.-Ing., KIT Karlsruhe
7. Akira Harada, Prof. Dr., Osaka University
8. Takashi Hiiragi, M.D., Ph.D., EMBL Heidelberg
9. Anthony D. Ho, Prof. Dr., Heidelberg University
10. Thomas Holstein, Prof. Dr., Heidelberg University
11. Urban Liebel, Dr., KIT Karlsruhe
12. Anna Marciniak-Czochra, Heidelberg University
13. Norio Nakatsuji, Prof. Dr., Kyoto University
14. Takao Ohta, Prof. Dr., Kyoto University
15. Bastian Rapp, Dr., KIT Karlsruhe
16. Fernanda F. Rossetti, Dr., Heidelberg University
17. Erich Sackmann, Prof. Dr., TUM München
18. Masaaki Sato, Prof. Dr. Tohoku University
19. Christoph Schmidt, Prof. Dr., University of Göttingen
20. Izumi Takagi, Prof. Dr., Tohoku University
21. Motomu Tanaka, Prof. Dr., Heidelberg University
22. Kenichi Yoshikawa, Prof. Dr., Kyoto University

SCIENTIFIC ORGANIZERS

Prof. Dr. Motomu Tanaka, Institute of Physical Chemistry, Heidelberg University

Prof. Dr. Thomas Holstein, Centre for Organismal Studies, Heidelberg University
in close cooperation with colleagues of all six Japanese and German universities.

ADMINISTRATIVE COORDINATION

Dr. H. Joachim Gerke, International Relations Office, Heidelberg University

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