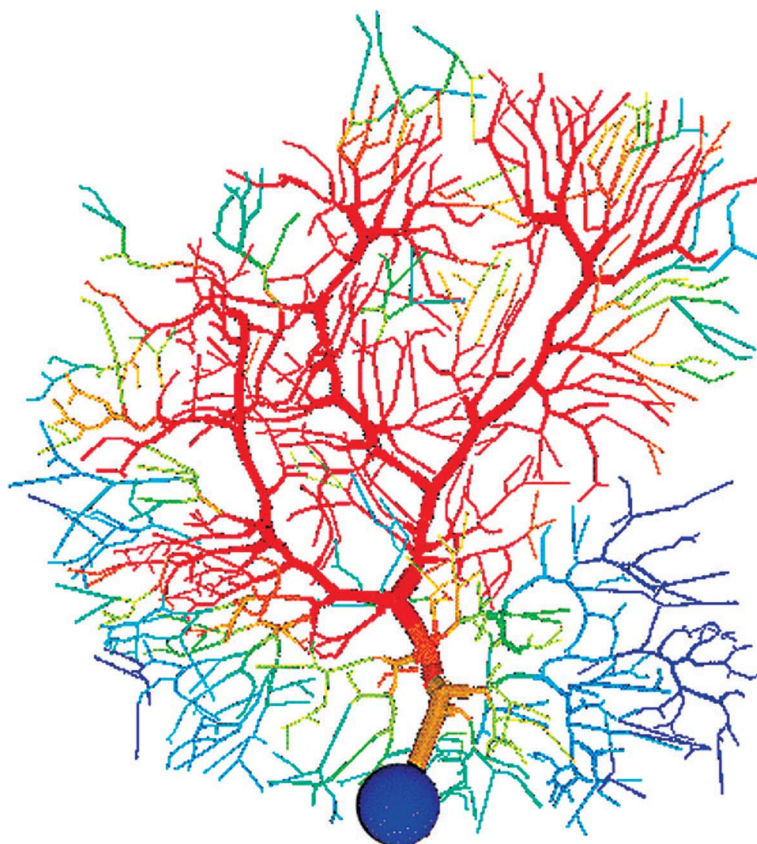


The Okinawa Institute of Science and Technology Promotion Corporation is an independent administrative institution launched in September 2005 to conduct outstanding research and to prepare for the establishment of a graduate university of science and technology in Okinawa. OIST News is a print publication intended to highlight current activities at OIST.



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Members of the Computational Neuroscience Unit  
Principal Investigator: Dr. Erik De Schutter (back row, fifth from the left)

The Computational Neuroscience Unit, led by Dr. Erik De Schutter, was launched in April 2007. Originally from Antwerp, Belgium, Dr. De Schutter received a bachelor degree in medicine in 1980 and a doctoral degree in medicine in 1984 from the University of Antwerp. Trained as a medical doctor and neurologist, Dr. De Schutter initially worked on simulating invertebrate central pattern generators. However, during a postdoctoral study at the California Institute of Technology in the early 1990s, he shifted his research focus to studying the function of the cerebellum, and developed a model of the cerebellar Purkinje cell, the most detailed single neuron model at the time. The image is still widely used, including on the cover page of the journal *Cerebellum* since its launch in 2002. With *OIST News*, Dr. De Schutter talked about his background and ongoing research in Okinawa. Cover page: A computer generated image showing the calcium response of the Purkinje cell model after activation of climbing fiber synaptic input, which has become the unit logo.

### ***Fascinated by brain research since youth***

As a young teenager, I already had a fascination for both brain research and computers. By the time I left high school, I had the idea that using computer modeling was a good approach to study the brain. It was in a way very naïve because I dreamed of understanding the brain function in my life time. While medical training in Europe and the U.S.A. has become clinical-oriented today, it was not so back then. Thus, during my medical school that began in 1977, I combined my interest in computers with research from the beginning. In the second year of medical school, which in Belgium is a seven-year program, I conducted my first research by simulating the induction of the neural plate of a chicken embryo, which is the first stage of neural tissue development.

### ***Using computers to study the brain***

Computer simulations have become a useful tool for mathematical modeling of many natural systems and for gaining insight into how they operate, including brain function. In later years of medical school, I stopped modeling neural development because I could not obtain sufficient data

to compare my models to. Instead, I started simulating invertebrate networks that generate rhythms, in collaboration with Dr. Ron Calabrese at Harvard University. For this research, I wrote my own simulator, a program called NODUS, which was distributed to many users.

In 1990, I received a prestigious Fogarty International Fellowship offered to foreign medical doctors by the National Institute of Health (NIH). Under the fellowship, I worked in the laboratory of Dr. Jim Bower, a professor at the California Institute of Technology (Caltech) who was employing a variety of experimental and computational techniques to study the mammalian cerebellum and the olfactory system. By this time, computational neuroscience had become an established field and Caltech was clearly one of the best places to study this. There, I developed a model of the Purkinje cell, which would become a canonical image of the field (see cover image).



Dr. De Schutter at his office in Onna Village

### *Falling in love with Okinawa*

After staying at Caltech full-time for three years, I traveled back and forth between Belgium and California until I obtained grants from various sources to launch my own modeling project in Belgium on the rat cerebellum. The grant sponsors included the Belgian National Fund for Scientific Research, NIH, the Human Science Frontier Program (HSFP) and later the European Commission.

OIST came to my life during my 3rd HSFP grant, which involved Dr. Mitsuo Kawato of the Advanced Telecommunications Research Institute International (ATR). Dr. Kawato, who knew Dr. Kenji Doya well, the first principal investigator to have joined OIST, called my attention to this new interesting research institute in Okinawa. Thus, when an invitation came from Dr. Doya to participate in the Okinawa Computational Neuroscience Course (OCNC) as a lecturer in the summer of 2006, I took the opportunity to investigate the local situation. I had been to Japan a few times to attend conferences, but it was my first time to this island. I must say I fell in love with Okinawa. In less than one year, I launched my unit at OIST.



The laboratory of the Computational Neuroscience Unit

### *Modeling at different levels of complexity*

In our unit, we use computers and software to simulate different aspects of the function of the cerebellum. The use of a model enables us to compute changes in time to see how systems interact with each other. Despite having the largest number of neurons in the brain, the cerebellum is poorly understood, especially its function in cognition. Meanwhile, the relatively simple anatomy of the cerebellum has enabled an extensive study of the physiology of its main neurons, allowing for detailed modeling at many different levels of complexity. The modeling work goes hand in hand with software development.

#### **1. Molecular modeling and STEPS**

The cerebellum, just like any other parts of the brain, is made up of billions of neurons. The transfer of a message from one neuron to another occurs in a synapse, a space where a dendrite receives a message from an axon mainly in the form of the release of chemical substances. My group has been working on new software called STEPS, which is

used to describe chemical reactions between molecules when the strength of synapses is changed.

#### **2. Cellular modeling and Neurofitter**

Since my modeling of the Purkinje cell in the early 1990s, a huge amount of new experimental data has become available. We are using Neurofitter, an automated parameter search method developed in our unit, to build a new Purkinje cell model. Neurofitter helps us find parameter values for which no experimental data are available, while other parameters come from our collaborators around the world. Another project in cellular modeling is simulation of the morphological and electrophysiological development of a neuron. Currently, we are focusing on morphology to better characterize the structure of neuronal dendrites, especially their relation to each other in the "forest of dendritic trees."

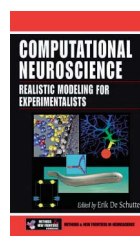
#### **3. Network modeling**

When we put these neuron models together and connect them, we obtain a network. A lot of effort goes into using simplified neuron models to generate a very large-scale network simulation of the whole cerebellum. One member in the unit is also conducting collaborative work on modeling the effect of ethanol on the cerebellum.

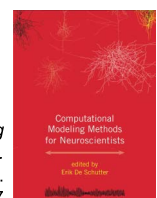
#### **4. Development of a computer language**

In the late 1990s, a group of scientists began an international effort to coordinate the use of informatics in neuroscience. The Organisation for Economic Co-operation and Development (OECD), the working group of which I was the Belgian delegate for, supported this effort that led to the foundation of the International Neuroinformatics Coordination Facility (INCF) in 2005. For the INCF, we are developing a computer language based on XML to describe neural network models. This language will enable users to exchange models independent of the software that they use, and foster the development of new software tools. We expect to have the first version available in 2010.

#### **Books by Dr. De Schutter**



*Computational Neuroscience: Realistic modeling for experimentalists.*  
Edited by Erik De Schutter. CRC Press.  
2001 ISBN 0-8493-2068-2.



*Computational Modeling Methods for Neuroscientists.*  
Edited by Erik De Schutter. MIT Press.  
November 2009. ISBN-13: 978-0-262-01327-7



### Exciting science is full of surprises

There is a tremendous benefit of being at OIST. One is good funding. Instead of having to spend time writing multiple grant proposals, I can concentrate on research and engage in other important activities in the scientific community, such as the INCF project and summer schools in computational neuroscience. In 1996, I co-founded the EU advanced course in computational neuroscience. Here at OIST, I am now the principal organizer of OCNC and also serve as the chair of the committee of principal investigators.

To me, exciting science is full of surprises. For example, when we started modeling dendritic growth and discovered that we lacked experimental data to test the simulations properly, we moved into a completely new area of data analysis on dendritic forests.

When Francis Crick and James Watson discovered the structure of DNA in 1953, I do not believe anybody at that time could foresee the implication of their findings. The

value and the problem of basic research is that it is impossible to predict its impact in advance. That is why I work hard to turn OIST into an important place for research. I really enjoy living in Okinawa. Although the temperature and humidity in Okinawa is much higher, I think the weather here is somewhat like that in Belgium. It is very unpredictable, just like research.



Okinawa Computational Neuroscience Course (OCNC) 2009  
June 14-July 2, 2009 at the OIST Seaside House



Opening remarks by  
Dr. De Schutter

## Promising Star Dr. Gabriela Antunes



Dr. Antunes joined the Computational Neuroscience Unit in January 2009. Born and raised in São Paulo, Brazil, Dr. Antunes majored in psychology at São Paulo State University and chemistry at the University of São Paulo. In 2007, she received a Ph.D. from the University of São Paulo for her work on computational modeling of hippocampal long-term potentiation (LTP) in CA1 pyramidal neurons. Having worked at a few laboratories in the U.S.A. during her Ph.D. study, Okinawa is not her first time abroad. Dr. Antunes talked about her background, ongoing research, future goals and the similarities between Okinawa and Brazil.

As a small child, I knew I wanted to become a scientist because the eldest brother of my grandmother was a scientist and she always spoke proudly of him. When I entered university, I first pursued psychology and worked in a psychopharmacology laboratory to investigate learning and memory. The work triggered my interest in the biochemical process related to memory formation, and I later found myself studying chemistry to better understand this process. For my Ph.D., I worked on computational modeling of hippocampal long-term potentiation (LTP)<sup>1</sup> and conducted a postdoctoral research on the modeling of calcium dynamics at a physiology laboratory in Brazil for about six

months, before joining OIST.

In the unit, I am using the STEPS software to develop a realistic model of long-term depression (LTD)<sup>2</sup> in the cerebellum. My role is to build a model composed of the principal pathways involved in cerebellar LTD. By using STEPS, I can simulate the signaling network of cerebellar LTD and compare the output of the simulation to experimental data, provided by our research collaborators in Tokyo and the U.S.A., in order to ensure that the results of the model are correct. Also, the model should be used to test some hypotheses and to generate new predictions about cerebellar LTD.

After publishing a paper on this LTD project, I would like to work on cerebellar LTP as my next project. LTD and LTP are thought to be the molecular basis for learning and memory, where chemistry meets behavior. That is why I think it is very interesting and so beautiful.

São Paulo is one of the Brazilian cities with a huge population of Japanese immigrants, many of whom are from Okinawa. In my neighborhood, I grew up with children born into those families. In school, I had classmates of Japanese ancestry who always performed well in mathematics. Life in Okinawa is really nice. There are a lot of similarities between Okinawa and Brazil, such as the weather, fruits and vegetables. I would like to continue research here and eventually become a professor upon returning to my home country.

1. Long-term potentiation (LTP): LTP is a long-lasting enhancement in signal transmission between two neurons that results from their synchronous activation. It is one of several phenomena underlying synaptic plasticity, a flexibility of the brain to adapt to the ever-changing environment.
2. Long-term depression (LTD): LTD is a long-lasting decrease in synaptic effectiveness that follows some types of electrical stimulation.

# New Research Units at OIST

February 1, 2010

05

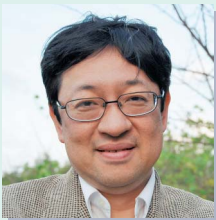
## Evolutionary Systems Biology Unit (established in May 2009)



Independent New Investigator  
Dr. Holger Jenke-Kodama

Dr. Holger Jenke-Kodama, who heads the Evolutionary Systems Biology Unit, aims to decipher the evolution of secondary metabolites, which are small compounds that belong to diverse chemical substance classes and are regarded as characteristic for individual species. Originally from Germany and previously a researcher at the University of Tokyo, Dr. Jenke-Kodama has dealt with modular polyketide synthases (PKSs) and nonribosomal peptide synthetases (NRPSs) in cyanobacteria, myxobacteria and streptomycetes. At OIST, one of his research projects is on bacterial symbionts of marine sponges in order to get a better understanding of the genomic background of such symbiotic communities.

## Open Biology Unit (established in June 2009)



Principal Investigator  
Dr. Hiroaki Kitano

The Open Biology Unit, led by Dr. Hiroaki Kitano, combines molecular sciences as well as mathematical and computational biology to develop novel software platform and computational forms of biological knowledge of budding yeast and cancer cells. Dr. Kitano is known for initiating the RoboCup, the global effort to promote artificial intelligence (AI), as well as robotics research and education. He has also founded and developed systems biology, which applies experimental, theoretical, and modeling techniques to study biological organisms. He received the 1993 Computers and Thoughts Award for his work in AI and 2000 Prix Ars Electronica for the creation of RoboCup as interactive digital arts. In 2009, Dr. Kitano received the Mid-career Achievement Award of the *Nature* Awards for Mentoring in Science, in recognition of his constant efforts in raising future generations of young researchers.

## Ecology and Evolution Unit (established in August 2009)



Independent New Investigator  
Dr. Alexander Mikheyev

Dr. Alexander Mikheyev's Ecology and Evolution Unit aims to address fundamental questions in ecology and evolution by combining the rich natural histories of a diversity of study systems with the latest tools in molecular biology. Dr. Mikheyev completed his Ph.D. at the University of Texas at Austin working coevolution in the attine ant-fungus mutualism. After completing his dissertation work, he did a year of field work in Central Africa as a Fulbright scholar. There, he used the Neotropical invasive ant *Wasmannia auropunctata* to address questions ranging from the role of mutualistic interactions on community function, to the role of sex for adaptation to novel habitats. At OIST, his research focuses on the evolutionary genetics of rotifers, with additional projects that range from community ecology with an emphasis on microbiology, to evolution in social hymenoptera, particularly ants.

## Marine Biophysics Unit (established in September 2009)



Independent New Investigator  
Dr. Satoshi Mitarai

The research focus of the Marine Biophysics Unit, led by Dr. Satoshi Mitarai, is to develop a real-time forecasting system for the coastal ocean circulation processes around Okinawa, and quantify connectivity among coral reefs via the ocean current through available modeling and observation technique. Originally from Wakayama, Japan, Dr. Mitarai received a Ph.D. at Washington University in U.S.A. and conducted his postdoctoral research at the University of California, Santa Barbara, focusing on the role of ocean turbulence in regulating biological and chemical processes at spatial scales. His research in Okinawa has important implications, including the design of marine protected areas, understanding spatial generic variations, and predicting the impact of pollution events.

## Structural Cellular Biology Unit (established in January 2010)



Principal Investigator  
Dr. Ulf Skoglund

The goal of the Structural Cellular Biology Unit, headed by Dr. Ulf Skoglund from Sweden, is to understand the function of proteins in cells and tissues. The main research tools of the unit are the techniques of electron microscopy, including molecular electron tomography (MET). The unit also draws upon well-established complementary techniques when called for. Formerly a researcher at Karolinska Institute in Stockholm, Dr. Skoglund and his colleagues developed constrained maximum entropy tomography (COMET), a software and method that can enable calculation of chemical reaction constants of molecules. At OIST, his research projects concern software development, application development and collaborations with other groups.

## Community Activities

As part of our community relations activities, OIST has held lectures by its researchers and the open house. In addition, OIST has participated in a number of local events in order to deepen its friendship with the local people. Introduced here are major community relations activities that took place in 2009.

### PI Lectures

In order to raise the interest of youth in science and technology, OIST Principal Investigators gave a lecture to local school children.

#### Let's learn from DNA

Lecture by Dr. Mary Ann Price  
Developmental Signalling Unit

February 5-6, 2009 at Kubura Junior High School and Yonaguni Junior High School, Yonaguni Island



Dr. Mary Ann Price

Dr. Price explained to students about DNA through a DNA extracting experiment using bananas, alcohol, distilled water and paper cups, as well as through a DNA fingerprinting experiment.

#### Mathematics all around us

Lecture by Dr. Robert Sinclair  
Mathematical Biology Unit

October 22, 2009 at Nakadomari Junior High School, Onna Village



Dr. Robert Sinclair

Dr. Sinclair first explained to students that mathematics is not equations, but something we do in our head. In a game with two students involved, he then humorously discussed about signaling molecules of a cell and the effect of viral DNA on the cell's behavior.

#### From Central Otago, New Zealand to Central Okinawa: A researcher's journey

Lecture by Dr. Gail Tripp  
Human Developmental Neurobiology Unit  
October 26, 2009 at  
Onna Junior High School, Onna Village



Dr. Gail Tripp

Dr. Tripp from New Zealand passionately talked about her own journey of becoming interested in science and becoming a researcher, as well as her ongoing research at OIST.

#### Self-similarity in nature

Lecture by Dr. Jonathan Miller  
Physics and Biology Unit

October 29, 2009 at  
Yamada Junior High School, Onna Village



Dr. Jonathan Miller

Using an analogy of a library, Dr. Miller explained about human genome, and discussed his research at OIST by referring to genomic information encoding and citing examples of self-similarity in nature.

#### Employers and employees in nature: Co-operation between organisms

Lecture by Dr. Holger Jenke-Kodama  
Evolutionary Systems Biology Unit

November 10 at  
Afuso Junior High School, Onna Village



Dr. Holger Jenke-Kodama

Likening "symbiosis," a state in which two species come together and build a relationship both partners benefit from, to a company hiring people to perform special tasks, Dr. Jenke-Kodama discussed about his research at OIST, which is to investigate bacterial symbionts of marine sponges.

## International Workshops and Seminars

OIST has been hosting international workshops and seminars to enhance cooperation with research institutions at home and abroad. These workshops and seminars also help introduce the vision of establishing a graduate university in Okinawa to the worldwide scientific community. Below is a list of workshops, seminars and lectures that took place between July and November 2009.

**July 3 Seminar** at the Research Laboratory  
"The role of synchrony in thalamocortical neural coding"  
Speaker: Dr. Ping Wang, Saik Institute  
Organizer: Dr. Klaus Stiefel

**July 6 Seminar** at the Research Laboratory  
"Channel density distributions explain spiking variability in the globus pallidus: A combined physiology and computer simulation database approach"  
Speaker: Dr. Cengiz Gunay, Emory University  
Organizer: Dr. Kenji Doya

**July 10 OIST-IRP Internal Seminars** at the Research Laboratory  
"Evidence for altered sensitivity to reinforce frequency in boys with ADHD"  
Speaker: Dr. Gail Tripp

"An improved microfiltration probe for quantitative peptide sampling from living brain"  
Speaker: Dr. Michael Chandro Roy

**July 13 Seminar** at the Bio Center  
"Kir channels - structure and mechanism"  
Speaker: Dr. Motohiko Nishida, The Rockefeller University  
Organizer: OIST

**July 15 Seminar** at the Bio Center  
"What is molecular electron tomography (MET)?"  
Speaker: Dr. Ulf Skoglund, Karolinska Institute  
Organizer: OIST

**July 21 Seminar** at the Bio Center  
"Activity-dependent growth cone guidance and neurite specification"  
Speaker: Dr. Makoto Nishiyama, New York University School of Medicine  
Organizer: OIST

**July 22 Seminar** at the Bio Center  
"Structures and functions of mitotic chromosomes"  
Speaker: Dr. Alexander Strunnikov, National Institute of Health  
Organizer: OIST

**July 22 Seminar** at the Research Laboratory  
"Midbrain dopamine neurons' responses to occasion setting and the overexpectation effect"  
Speaker: Mr. Luca Aquili, Ph.D. Student, University of St. Andrews  
Organizer: Jeff Wickens, OIST

**July 23 Seminar** at the Bio Center  
"Correlating genomics and function through 3-D cryo-EM of intact cells"  
Speaker: Dr. Luis R. Comolli, Lawrence Berkeley National Laboratory  
Organizer: OIST

**July 27 Cross-Cultural Seminar** at the Research Laboratory  
Speaker: Dr. Wesley Ueunten, San Francisco State University  
Organizers: Dr. Keiko Ito, HR Section, OIST

**July 28-29 Seminars** at the Research Laboratory  
"Patterning neurogenesis: a dynamical model of ommatidial crystal formation" (July 28)  
"Cell engulfment and cell competition in Drosophila growth, homeostasis, and tumor suppression" (July 29)  
Speaker: Dr. Nicholas Baker, Albert Einstein College of Medicine  
Organizer: Dr. Mary Ann Price, OIST

**July 31 Seminar** at the Research Laboratory  
"Striatal synaptic plasticity: it's not just about dopamine"  
Speaker: Dr. James Surmeier, Northwestern University  
Organizer: Dr. Gordon Arbuthnott, OIST

**August 3 Seminars** at the Seaside House  
"Cortical processing and neuromodulatory systems"  
Speaker: Dr. Shunsuke Kobayashi, Cambridge University  
Organizer: OIST

"Unraveling the neuronal mechanisms of visual awareness"  
Speaker: Dr. Alexander Maier, National Institute of Mental Health  
Organizer: OIST

"Dissociable components of rule: guided behavior depend on distinct medial frontal and prefrontal regions"  
Speaker: Dr. Farshad Mansouri of RIKEN Brain Science Institute  
Organizer: OIST

"Dissociable components of rule: guided behavior depend on distinct medial frontal and prefrontal regions"  
Speaker: Dr. Farshad Mansouri of RIKEN Brain Science Institute  
Organizer: OIST

"Bold dynamics of visuomotor representations in free-choice and reward-based decision"  
Speaker: Dr. Igor Kagan, California Institute of Technology  
Organizer: OIST

**August 4 Seminars** at the Seaside House  
"Role of the medial frontal cortex in behavioral switching and monitoring"  
Speaker: Dr. Masaki Isoda of RIKEN Brain Science Institute  
Organizer: OIST

"Thalamo-cortical interactions underlying visual awareness and decision making"  
Speaker: Dr. Melanie Wilke, California Institute of Technology  
Organizer: OIST



## OIST Open House 2009

In order to provide an opportunity for local citizens to see OIST research activities firsthand, OIST held its second Open House on November 15, 2009 at the Okinawa Industrial and Technology Center in Uruma City. Approximately 470 people, including elementary and junior high school students, came to enjoy lectures, lab tours as well as scientific exhibitions and demonstrations.



Approximately 470 visitors came to the event

### Lectures



Dr. Robert Sinclair  
Mathematical Biology Unit  
*Mathematics all around us*

Dr. Satoshi Mitarai  
Marine Biophysics Unit  
*Marine Environmental Research at OIST*

Dr. Young-Ho Yoon  
Trans-membrane Trafficking Unit  
*How to obtain 3D visualization of a protein*

### Lab tour



Lab tour of the GO Cell Unit

Lab tour of the  
Developmental Neurobiology Unit

**August 5 Mini-symposium** at the OITC  
**"Development and plasticity of motor circuits in *Drosophila*: from synapses to function"**

Speaker: Dr. Akinao Nose, The University of Tokyo

**"The receptor protein tyrosine phosphatase LAR regulates myosin II function to influence axon guidance"**

Speaker: Dr. David Van Vactor, Harvard Medical School  
 Organizer: Mary Ann Price, OIST

**August 5 Seminar** at the Research Laboratory  
**"The role of phasic dopamine signaling in the determination of agency and the discovery of novel actions"**

Speaker: Dr. Peter Redgrave, University of Sheffield, UK  
 Organizer: Dr. Gordon Arbuthnott, OIST

**August 6 Seminar** at the Research Laboratory  
**"A PDE approach to the irregular firing of cortical interneurons"**

Speaker: Dr. Bernhard Englitz, Max Planck Institute for Brain Research  
 Organizer: Dr. Klaus Stiefel, OIST

**August 9 Workshop on Mechanism of Brain and Mind** in Sapporo  
 Secretariat: The Neural Computation Unit, OIST  
 URL: <http://brainmind.umin.jp/eng-sm10.html>

**August 17 Seminar** at the BIO Center  
**"Connecting dendritic signal processing to systems neuroscience and behavior"**

Speaker: Dr. Bernd Kuhn, Princeton University  
 Organizer: OIST

**August 22 Lectures** at the Asia Youth Exchange Program Open Seminar  
**"Understanding the brain by creating one"**

Speaker: Dr. Kenji Doya, OIST

**"Progress of life science and model organisms"**

Speaker: Dr. Ichiro Maruyama

**September 8-10 Reinforcement and Attention Deficit Hyperactivity Disorder (ADHD) Workshop** at the Seaside House

Organizer: Dr. Gail Tripp, OIST

**September 11 OIST-IRP Internal Seminars** at the Research Laboratory  
**"How systems biology can help understand the evolution of bacterial secondary metabolism"**

Speaker: Dr. Holger Jenke-Kodama, OIST

**"Metabolomic analysis of cellular quiescence"**

Speaker: Mr. Tomas Pluskal, OIST

**September 14 Seminar** at the Research Laboratory  
**"Innervation of cholinergic interneurons in the rat striatum"**

Speaker: Dr. Rachel J. Sizemore, University of Otago  
 Organizer: Dr. Gordon Arbuthnott, OIST

### Scientific exhibition and demonstrations



Observation of robots called Cyber Rodents

Extracting DNA from bananas

Microscopic observation of a *c.elegans* worm

## Local and Community Events

### Softball Game

On March 1, 2009, two OIST teams played against teams from the Japan Air Self-Defense Force, Rizzan Sea-Park Hotel and Tancha Day Service Center in Onna Village.



Dr. Katsuhiko Miyazaki of the Neural Computation Unit

After scoring a run

Onna Mayor Fumiyasu Shikiya (fourth from right) and representatives of the teams after the game

### Maeganeku Dragon Boat Race

On May 27, 2009, a dragon boat race took place in Maeganeku, Onna Village. An OIST team participated in the event, said to precede the end of a rainy season in Okinawa.



Go OIST!

OIST Team

**October 16 OIST-IRP Internal Seminars** at the Research Laboratory  
**"Nerve growth factor signals via preformed homodimeric TrkA receptors"**

Speaker: Dr. Jianying Shen, OIST

**"The coral *Acropora digitifera* genome project"**

Speaker: Dr. Chuya Shinzato, OIST

**October 26 Seminar** at the Bio Center  
**"Hox gene clusters in a basal jawed vertebrate and the evolution of Hox gene clusters in vertebrates"**

Speaker: Dr. B. Venkatesh, Institute of Molecular Cell Biology, Singapore  
 Organizer: Dr. Ichiro Maruyama, OIST

**November 2-7 DNA Topology Course 2009** at the Seaside House  
 Organizer: Dr. Robert Sinclair, OIST, et al.  
 URL: [http://web.me.com/oist\\_mbu/DNA\\_Topology\\_Course/Home.html](http://web.me.com/oist_mbu/DNA_Topology_Course/Home.html)

**November 6 Seminar** at the Research Laboratory  
**"Non-equilibrium membrane potential: advancing potentiometric ion-sensing into its limits"**

Speaker: Dr. Andrzej Lewenstam, Abo Akadei University, Finland  
 Organizer: Dr. Klaus Stiefel, OIST

**November 9-12 Workshop "The Retina: neural stem cells and photoreceptor degeneration"** at the Seaside House

Organizers: Dr. Ichiro Masai, OIST et al.  
 URL: <http://www.oist.jp/retinaws2009/index.html>

**November 13 Seminar** at the Research Laboratory  
**"Plasticity in developing retinal networks in health and disease"**

Speaker: Dr. Evelynne Sernagor, Newcastle University, UK  
 Organizer: Dr. Gordon Arbuthnott, OIST

**November 16 Seminar** at the Research Laboratory  
**"Myxobacteria-cool bugs for novel drugs"**

Speaker: Dr. Rolf Mueller, Saarland University, Germany  
 Organizer: Dr. Holger Jenke-Kodama, OIST

**November 29-December 3 The 4th International Workshop on Cell Regulation in Division and Arrest** at the Seaside House

Organizer: Dr. Mitsuhiro Yanagida, OIST  
 URL: <http://www.ird.oist.jp/g0/workshop2009/>

**November 30 Seminar** at the Research Laboratory  
**"The role of cytoarchitecture in Purkinje cell synaptic plasticity and homeostasis: experiments and simulations"**

Speaker: Dr. Thomas Launey, RIKEN Brain Science Institute  
 Organizer: Dr. Erik De Schutter, OIST

## The 8th Meeting of the Board of Governors and The 1st Meeting of OIST Establishing Members



The 8th BOG meeting

The 8th meeting of the OIST Board of Governors and the 1st Meeting of OIST Establishing Members took place on October 8-9, 2009 in Tokyo. In the BOG meeting, the members discussed progress on the campus construction, research activities and other ongoing preparation for the establishment of the graduate university. In the first meeting of the OIST establishing members, who were appointed following the enactment of the OIST School Corporation Act on July 10, 2009, discussion was held on the preparation including the application for university accreditation. Following the discussions, the members made a courtesy call on Senior Vice Minister Atsushi Oshima in charge of Okinawa and Northern Territories Affairs, in order to report on the outcome of the meetings.



Senior Vice Minister Oshima and the BOG members

## Dr. Torsten Wiesel receives the Grand Cordon of the Order of the Rising Sun

Dr. Torsten Wiesel, President Emeritus of the Rockefeller University, the 1981 Nobel Laureate in Physiology or Medicine, and Co-chair of the OIST Board of Governors, was awarded the Grand Cordon of the Order of the Rising Sun by the Government of Japan. Citing Dr. Wiesel's contribution to the promotion and the development of the joint research program advocated by Japan as the reason for his award, the Japanese Government expressed its appreciation for Dr. Wiesel's role as Secretary General of the Human Frontier Science Program (HFSP) from April 2002 through June 2009. At a ceremony at the residence of Japanese ambassador to Sweden Akira Nakajima on December 14, 2009, Dr. Wiesel described HFSP as a great and unique organization that has contributed to establishing a global network of researchers. He also referred to OIST as a very exciting initiative to launch a research center of science and technology in Okinawa, and added that he believes the project will succeed.



Dr. Wiesel and Amb. Nakajima

## Visit by Members of the House of Councilors Okinawa Affairs Committee

On January 13-14, the members of the House of Councilors Special Committee on Okinawa and Northern Territories Affairs visited the OIST research facilities in Uruma City and the graduate university campus site in Onna Village. Executive Director Dr. Robert Baughman briefed the members on the progress of the ongoing operations. Citing the expectation of the people of Okinawa, Chairman Ichiro Ichikawa expressed words of encouragement for OIST to exercise further efforts, while also pledging continued cooperation from the Japanese parliament.



Dr. Baughman briefs Chairman Ichikawa and Director Tsukasa Iwamoto (far right)

## Visit by U.S. Ambassador John Roos

On December 2, U.S. Ambassador to Japan John Roos visited OIST. Following a tour of the Center Building and Laboratory 1 by Executive Director Dr. Robert Baughman, Ambassador Roos received a presentation on OIST at the Seaside House, which was also attended by BOG member Dr. Hiroko Sho, Dr. Kenji Doya of the Neural Computation Unit and Dr. Jeff Wickens of the Neurobiology Research Unit. The ambassador listened attentively to the explanation that OIST is conducting cross-disciplinary research, and that it aims to form an intellectual cluster modeled after that of San Diego. At the end of the visit, he commented that the success of OIST will contribute to unprecedented economic development of Okinawa, and that the project holds great promise for the future for Japan.



Ambassador Roos listens to Dr. Baughman (Far left is Dr. Sho)

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