

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 Trans-membrane Trafficking Unit

Principal Investigator: Dr. Fadel A. Samatey (back row, right)

The Trans-membrane Trafficking Unit, led by Dr. Fadel A. Samatey, was launched in April 2007 in Uruma City. Born in Senegal and raised in West African countries of Senegal, Nigeria, Togo, Ghana and Cote d'Ivoire, Dr. Samatey went to France for his undergraduate study in theoretical physics at the Joseph Fourier University. There he worked on the analysis of a two dimensional crystal lattice by neutron diffraction and received his Ph.D. in 1992. In 1994, Dr. Samatey arrived in Japan on a science and technology fellowship granted by the European Union to work at the Photon Factory in Ibaraki Prefecture. Two years later, he joined the Advanced Technology Research Laboratories of Matsushita Electric Industrial Co. Ltd. to embark on a challenging project on X-ray protein crystallography. The culmination of his work was published in the March 15, 2001 issue of the leading international scientific journal *Nature*, receiving a front-page feature. His subsequent work on the bacterial flagellar hook protein led Dr. Samatey to receive the 2005 Hyogo SPring-8 prize in recognition of his excellent research using SPring-8, the world's largest third-generation synchrotron radiation facility located in Hyogo Prefecture.

### ***Interest in math and economics shifts to life science***

In my teens, I loved mathematics. I used to dream about conducting research in mathematics with a pen, a piece of paper and a cup of coffee, and work all day as much as I wished. My hope was to combine mathematics with economics, and come up with a very beautiful economic

theory. However, in the first year of my undergraduate study, I discovered that life science was more exciting, and decided to pursue this field.

After obtaining my Ph.D., I worked for



Dr. Samatey at his office in Uruma City

two years at the CNRS<sup>1</sup> in Paris on the prediction of the topology of membrane proteins. The computational approach I employed to the problem was interesting, but I felt that one thing was missing: experimental validation.

### ***Membrane proteins***

A cell is highly organized and it contains organelles that are separated by one or more membranes made of specific proteins and lipids. These proteins, called membrane proteins, and lipid components enable organelles to perform their unique roles in the cell. Membrane proteins are essential for the integrity and the function of the cell. For example, they act like border guards to control the selective transfer of molecules across the membrane. However, exactly how the transfer is controlled is poorly understood. Thus, we are trying to look at the three-dimensional (3D)





6-litre culture of *E. coli* to produce a few milli-grams of a membrane protein

structure of a membrane protein to understand its functional mechanism at the atomic level.

There are three main ways to obtain the 3D structure of a protein. One is electron microscopy, which is a method to determine the arrangement of atoms in solids using an electron microscope. The second is nuclear magnetic resonance (NMR), an analytical chemistry technique that exploits the behavior of certain atoms when

they are placed in a very strong magnetic field. The third method is X-ray crystallography, in which the pattern produced by the diffraction of X-rays through the closely spaced lattice of atoms in a crystal is recorded and analyzed. When the 3D structure of a protein is determined, its coordinates are deposited in a database called the Protein Data Bank (PDB)<sup>2</sup>. As of February 2009, the database, updated weekly, contains 55,660 structures. Although membrane proteins make up about 30% of the proteins encoded by most genomes, they represent only about 3% of the known 3D structure of proteins. The scarcity is attributed to the insolubility of membrane proteins in water, making the crystallization very difficult.

To a researcher, it is crucial to find a subject that is truly interesting and motivating. I have chosen to work on the determination of 3D structure of membrane proteins because of their important role in diverse cellular mechanisms. In Okinawa, our unit is using X-ray crystallography to solve the 3D structure of membrane proteins in *Salmonella* and *E. coli*.

#### **Bacterial flagella and export apparatus**

When a human cell is infected with bacteria, the bacteria inject toxins into the cell through the cell membranes. Long before sophisticated machines were invented, bacteria developed multi-component systems like the flagellum and the needle complex. The flagellum, made of about 30 different protein components, is a molecular machine that enables bacteria to swim in their environment. The bacterial flagellum can be found in many types of micro-organisms. The needle complex is a secretion system specific to the so-called Gram-negative bacteria<sup>3</sup>. The needle complex is like a molecular syringe that delivers toxic proteins into their host cells and induces an infection. Most infectious diseases triggered by bacteria have long been known, from gastroenteritis and typhoid fever induced by *Salmonella*, to hemorrhagic diarrhea caused by *E. coli*, to dysentery by

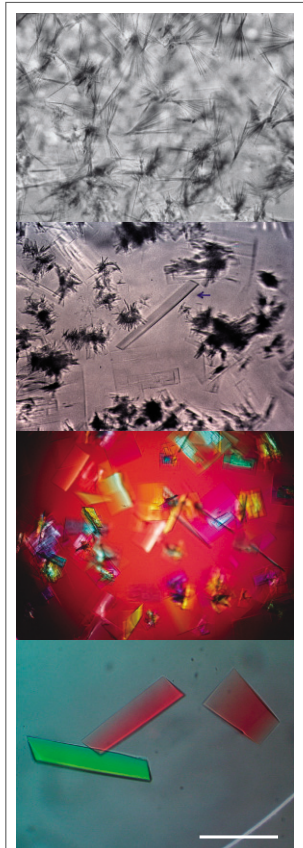
*Shigella*. However, molecular mechanisms of toxin translocation and their secretion system, together with the structure of the needle that bridges the bacteria and the host cells, are not fully understood.

During the construction of the bacterial flagellum, tens of thousands of proteins are exported across the membranes by a mechanism known as the flagellar type III secretion system (TTSS). In Gram-negative bacteria, not only the construction of the "needle" of the needle complex, but also the secretion of virulence proteins requires a TTSS that is homologous to the one found in the flagellar system. The TTSS in the needle complex and in the flagellar system are evolutionarily related. The structural and functional investigation into these systems will help us determine the gate-keeping role of membrane proteins. Understanding the detailed mechanisms involved in these processes is crucial in fighting bacterial infections.

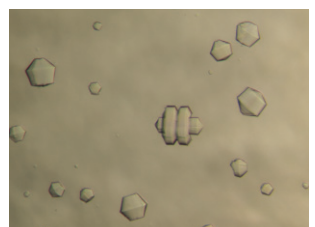
#### **Producing crystals:**

##### **"Magic in a solution?"**

Protein crystallization is the bottleneck in protein X-ray crystallography. In order to produce a crystal large enough for X-ray diffraction analysis, we use a chemical solution that induces either crystallization or precipitation. Success in the production of high quality crystals is determined by the purity of the protein sample and the fine tuning of the solution, which involves changes in temperature, as well as the concentration and combination of chemicals. This is the time when a researcher needs to use the creativity of a painter who is mixing colors to make a drawing of an Okinawa sea at sunset. Possibilities are infinite. No matter how many



From left to right: Progress in protein crystallization. Between each step, more than 100 determinations of the appropriate conditions are performed to produce a single protein crystal. The bar at the bottom right represents 0.3 mm.



Membrane protein crystals obtained in the unit



Ms. Irina Mescheryakova performs *E. coli* transformation

proteins one has successfully crystallized, every new project is a new beginning with all of its difficulties. It is a matter of putting not only your knowledge and your imagination, but also your heart, mind, soul and determination into this tiny drop of solution.

without a report of human deaths caused by *Salmonella* poisoning. Having a full understanding of the bacterial protein secretion systems will help researchers obtain the basic knowledge of how bacteria infect a human cell. This is my dream. The challenge is to make OIST an important research center for the study of membrane proteins; a place where structures of membrane proteins are successfully solved. The members of my unit are extremely motivated and I am confident that success is ahead of us. "*Per aspera ad astra*"—Through hardships to the stars.

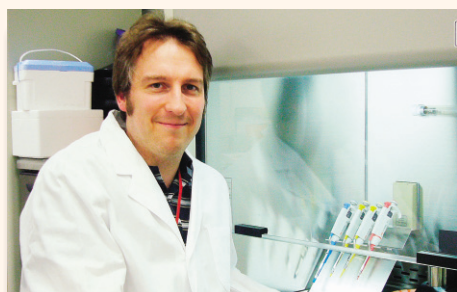
### A dream and a challenge

As a researcher, I would like to see application of the results of our work. Bacteria induce diseases in humans. For example, pathogenic *E. coli* strains remain a leading cause of severe and persistent infant diarrhea in developing countries. Even in developed countries, no single year passes

1. CNRS: National Center for Scientific Research, France's leading research institution
2. The Protein Data Bank Japan: <http://www.pdbj.org/index.html>
3. Gram-negative bacteria: Bacteria that do not retain crystal violet dye in a staining technique named after the Danish scientist Hans Christian Gram (1853-1938) to classify bacteria into two large groups

## Promising Star

Dr. Clive Barker



Dr. Barker joined the Trans-Membrane Trafficking Unit in August 2007, three months after its launch. Originally from Worthing, located on the South Coast of England, Dr. Barker received a bachelor degree in microbiology from the University of Liverpool, and a Ph.D. on the study of a food-borne pathogen called *Listeria monocytogenes* as well as food preservatives from the Institute of Food Research in Reading, U.K. Prior to joining OIST, he held a research position at the University of Illinois in the U.S.A. for four years working on the flagellum system. With *OIST News*, Dr. Barker talked about his role in the unit and future aspirations.

Flagella have been intensely studied over the past 30 to 40 years. Our unit is looking at how flagellar proteins are exported out of the cell in the bacterium *Salmonella typhimurium*. We want to find out how the substrates which make up the flagellum are recognized and sorted before they are exported, and how the process of export happens.

In the unit, I work with my colleague, Ms. Irina Meshcheryakova, to study the function of the six membrane proteins, which comprise the Type III Secretion System at the base of the flagellum. We are using a combination of genetic and biochemical techniques to investigate the functions of the proteins. Of course, the best way to understand the function of a protein is to see its structure, determined by X-ray protein crystallography, because once

you see the structure, it is easier to imagine its function. If you succeed in solving the structure of a protein, it greatly helps our understanding because you can then make specific mutations within the proteins to find out if your ideas are correct or not.

We test the function of the proteins by the ability of the protein to restore motility to strains of *Salmonella* containing a mutation in the corresponding gene. We also investigate the function of the proteins by looking at the interaction between the various proteins by biochemical methods. Our efforts are complementary to other members of the unit undertaking crystallography studies.

The nature of protein-protein interactions<sup>1</sup> in trans-membrane trafficking systems varies. Some protein-protein interactions are likely to be stable, while other interactions can be transient. For stable interactions, it might be possible to crystallize a protein and its partner to know how they interact. But, other techniques are required to investigate weaker interactions. Our unit will use surface plasmon resonance (SPR)<sup>2</sup> to investigate the strength of the protein-protein interactions to determine whether the interactions between different proteins are stable, weak or transient.

Life in Okinawa is very convenient and easy to adjust to. I like the weather, the nature, and the pace of life on this island. I live with my wife and two young children here. I enjoy working in a strongly bonded team. Together, we spend hours in the lab. My long-term goal as a scientist is to work on the flagella system or other types of secretion systems, and to hopefully produce interesting publications.

1. Protein-protein interactions: Most protein molecules interact with other protein partners or form large multi-protein complexes to achieve their functions.
2. SPR: A technique to measure bio-molecular interactions in real-time in a label free environment. The technology relies on the measurement of small changes in the reflection of monochromatic light from a metallic chip that occurs when the chip surface binds a protein or other molecule.



## Open House 2008



On November 9, 2008, OIST held its first Open House at the Okinawa Industrial and Technology Center in Uruma City, providing an opportunity for local citizens to see the research activities of OIST. Approximately 630 people, including elementary and junior high school students, came to enjoy lectures, scientific exhibitions and demonstrations.

### Scientific exhibition and demonstration

Eight exhibition and demonstration booths were set up for visitors to directly interact with OIST researchers and to see demonstrations of OIST research. At one booth, visitors peered into a microscope to study the eyes of insects, experiencing the micro world. At another booth, zebra fish and *c. elegans* were enhanced with green fluorescent protein (GFP) for microscopic observation. GFP, which won Japanese scientist Dr. Osamu Shimomura the 2008 Nobel Prize in chemistry, is a vital research tool derived from a jellyfish. In a different experiment, shampoo, coffee filters and other kitchen utensils were used to extract DNA from a banana. Both children and adults let out a cheer when the white DNA precipitated out of the soap solution. There was also a demonstration of robots, called Cyber Rodents. Many children were glued to the robots that moved and captured battery packs on their own.



About 630 people came to the event



Extracting DNA from bananas



Microscopic observation of a *c. elegans* worm

Among the visitors were female students from Yokatsu High School and Midorigaoka Junior High School in Uruma City. They came to the event accompanied by Mr. Masatoshi Watanabe, a science teacher at the junior high school. The students are members of a science club that has been actively holding local scientific events, including observation of marine animals by elementary

school children and lectures by Mr. Watanabe. The girls avidly listened to talks by OIST researchers. Dismissing the notion that children these days do not enjoy studying science, Mr. Watanabe said he does not know any student who dislikes science. He added that an event like this Open House is important in raising the interests of youth in science.



Observation of Cyber Rodents

### Lab tour

The lab tour gave participants an opportunity to have a firsthand view of laboratories where OIST researchers work every day. The tour, held one in the morning and one in the afternoon, gathered a group of 20 people to the G0 Cell Unit and the Electron Microscope Center. Dr. Mizuki Shimanuki, Dr. Kojiro Takeda and Ms. Aya Kokubu of the G0 Cell Unit explained and demonstrated their research equipment, while Ms. Tomoko Yoshida, OIST's technical staff for electron microscopy, showed the state-of-the-art equipment she uses every day.



Lab tour



Ms. Aya Kokubu explains about a mass spectrometer

The first ones to arrive at the event were the Nagamine and Naka families from Tomishiro City, who registered for the lab tour. Mr. Shota Nagamine, a 4th grader, said he had been looking forward to the event and particularly the lab tour since this was a chance for him to see real science. The four-member Yagi family also took part in the lab tour. Mrs. Hiromi Yagi, the mother of Fuuko, a 5th grader, and Ryoki, a 2nd grader, said it was a precious experience to step into the lab and look into a huge electron microscope.

### PI Lectures

The event also included lectures by three principal investigators of OIST. Dr. Ichiro Masai of the Information Processing Biology Unit, Dr. Kenji Doya of the Neural Computation Unit, and Dr. Gail Tripp of the Human Developmental Neurobiology Unit each talked about their research and their field of expertise for about 20 minutes.

Mr. Kazuo Yogi, who headed the three-generation Yogi family from Naha City, said even though the lectures were difficult, they all opened his eyes to new fields. His grandson, Tatsuki, a 3rd grader, said he likes experiments in science class, adding that he wants to become a scientist in the future.



Dr. Gail Tripp

## Winter Course "Evolution of Complex Systems"



Participants of the Winter Course

The Winter Course "Evolution of Complex Systems" took place on December 8-14, 2008 at the OIST Seaside House. The course was a combination of winter school that took place in the first five days, and workshops held in the last two days. The school offered morning lectures by six prominent researchers as well as afternoon lab-work tutorials. The workshops included oral presentations and vigorous discussions on the topics presented. A total of 15 graduate students and postgraduate researchers participated in the course, with six additional researchers who joined the workshop. For young researchers with biological backgrounds, it was an opportunity to learn the latest advances in the field of evolutionary developmental biology, while those with theoretical backgrounds were able to receive hands-on experience in gene expression. OIST President Dr. Sydney Brenner and three OIST principal investigators, Dr. Noriyuki Satoh, Dr. Ichiro Masai and Dr. Mary Ann Price, organized the course. The detail of the course can be seen on our Website. <http://www.irdp.oist.jp/owecs/index.html>



### Lectures



Lecture by Dr. Sydney Brenner "Evolution of Genes and Genomes"



Discussion with Professor Michael Levine of University of California at Berkeley, U.S.A

## 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 October 2008 and January 2009.

### 2008

#### October 8 Seminar at the Research Laboratory "Voltammetric measurements of rapid chemical signaling by dopamine during behavior"

Speaker: Dr. Mark Wightman, University of North Carolina Chapel Hill  
Organizer: Dr. Jeff Wickens, OIST

#### October 9 Seminar at the Research Laboratory "Investigating fast network oscillations in the rat basolateral amygdala in vitro"

Speaker: Ms. Fiona Randall, Ph.D. student, Newcastle University, U.K.  
Organizer: Dr. Gordon Arbuthnott, OIST

#### October 10 OIST-IRP Internal Seminars at the Research Laboratory "The quality control of mitochondria in the G0 quiescent phase is achieved by a 'double-lock' system: the ubiquitin/proteasome system and autophagy"

Speaker: Dr. Kojiro Takeda, OIST  
"Unraveling the Role of Preformed Epidermal Growth Factor Receptor Dimers by Mutagenesis Analysis"  
Speaker: Dr. Aini Suzana Adenan, OIST

#### October 14 Seminar at the Research Laboratory "Origins of visual input to the Basal Ganglia"

Speaker: Ms. Jan Schulz, Ph.D. student, University of Otago  
Organizer: Dr. Gordon Arbuthnott, OIST

#### October 16-18 Workshop on Open Problems in Neuroscience of Decision Making at the Seaside House

Organizers: Dr. Kenji Doya, OIST etc.

#### October 28 Seminar at the Research Laboratory "Crystal structure of the novel complex formed between Zinc $\alpha$ -2-glycoprotein (ZAG) and Prolactin inducible protein (PIP) from human seminal plasma"

Speaker: Md. Imtaiyaz Hassan, Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, India  
Organizer: Dr. Fadel Samatey, OIST

#### November 4-6 "Multi-Scale Phenomena In Biology" Workshop at the Seaside House

Organizers: Drs. Robert Sinclair, Klaus Stiefel, OIST

#### November 7 Seminar at the Research Laboratory "Neurons, synapses and connections in the deep cerebellar nuclei"

Speaker: Dr. Marylka Uusisaari, RIKEN Brain Science Institute  
Organizer: Dr. Klaus Stiefel, OIST

#### November 7 Seminar at the Research Laboratory "The N150 of the Auditory Evoked Potential from the rat amygdala: In search for its functional significance"

Speaker: Dr. Jeroen Knippenberg, Radboud University Nijmegen, Netherlands  
Organizer: Dr. Klaus Stiefel, OIST

#### November 14 Seminar at the Research Laboratory "Structural investigations of textilin-1, a potent protease inhibitor from the Australian Brown snake, *Pseudonaja textilis*"

Speaker: Dr. Emma-Karin Millers, University of Queensland, Australia  
Organizer: Dr. Fadel Samatey, OIST

#### November 14 OIST-IRP Internal Seminars at the Research Laboratory "Neurobiology of salamander"

Speaker: Dr. Setsuko Nakanishi, OIST

#### "The search for reward- and action-dependent state coding for a reinforcement learning agent"

Speaker: Mr. Makoto Otsuka, OIST

#### November 17-21 "Gradients and Signalling: from chemotaxis to development" Workshop at the Seaside House

Organizers: Drs. Ichiro Maruyama, Ichiro Masai, Mary Ann Price, Fadel Samatey, OIST

#### November 26 Seminar at the Research Laboratory "Phorbol ester-induced presynaptic plasticity at hippocampal mossy fiber terminals by probing vesicle dynamics"

Speaker: Mr. Takuya Hikima, Ph.D student, Tohoku University Graduate School of Life Science  
Organizer: Dr. Gordon Arbuthnott, OIST

#### November 26 Seminar at the Research Laboratory "Mitophagy, degradation of mitochondria via an autophagy-related pathway in budding yeast"

Speaker: Dr. Koji Okamoto, National Institute for Basic Biology  
Organizer: Drs. Mitsuhiro Yanagida, Mizuki Shimanuki, OIST



## Tutorial

During the tutorial, coral genome DNA sequence data, provided by the Marine Genomics Unit, were used to conduct molecular phylogenetic analysis. The sequence was compared with genes of human, flies and other animals to find similar genes and construct molecular phylogenetic trees. As a result, it was concluded that the sequence is an evolutionally conserved gene between animals.

In the Marine Genomics Unit, researchers are delving into the evolution of chordates. As illustrated in the tutorial, the unit is employing the comparative genomics approach in its research. They compare the genomic DNA sequence of humans or other animals to those of other species or organisms, obtained using a DNA sequencing machine, to find the development of higher



Making a genome comparison between species using data obtained using a DNA sequencing machine



Lecture by Dr. Noriyuki Satoh "An overview of the evolution of complex systems of animals"

forms of life from lower ones that came before.

Dr. Satoh said the winter course was a good combination of lectures and hands-on experience. He expressed his eagerness to continue the course in coming years by inviting outstanding students.

## Participant interviews

### Dr. Sven Leininger

Post-doctorate Researcher, Sars International Centre for Marine Molecular Biology, Norway

*"I learned about this course from a colleague who used to work at Dr. Satoh's laboratory in Kyoto. In Norway, I investigate molecular mechanisms involved in the development of the larvae of the calcareous sponge Sycon ciliatum. The lectures were all very interesting, and I also learned a lot in the subsequent discussions. I would like to apply what I have learned in the tutorial and throughout the course to my research."*

### Dr. Nami Okubo

JSPS Research Fellow, Post-doctorate Researcher, Kyoto University Japan

*"The current field of my study is reproductive and developmental biology of corals. I am going to pursue molecular biology at Australia National University starting in August 2009. I feel fortunate to have had the chance to participate in this course before my new research begins."*

### Mr. Shinichi Sunagawa

Graduate Student, University of California Merced, U.S.A.

*"I feel privileged to have had the chance to listen to excellent lectures by world-class experts in the field. In my oral presentation and the following discussion, I was able to share with others what I study. The personal exchange throughout the course truly broadened my view. Although my parents are Japanese, I was born and raised in Germany, and I have only visited Japan a few times. It was my first time in Okinawa and I have come to like this island very much."*

**November 27 Seminar** at the OITC  
**"Interaction and localization of Necl-5 and PDGF receptor  $\beta$  at the leading edges of moving NIH3T3 cells: Implications for directional cell movement"**

Speaker: Dr. Hisayuki Amano, Kobe University Graduate School of Medicine  
 Organizer: Dr. Ichiro Maruyama, OIST

**Seminar** at the Seaside House  
**"The  $Ca^{2+}$  pump for synapse plasticity"**

Speaker: Dr. Ruth M. Empson, University of Otago  
 Organizer: Dr. Erik De Schutter, OIST

**November 28 ADHD Conference** at the Seaside House

**December 9 Seminar** at the Seaside House  
**"A phase transition to collective behavior in eukaryotic cell populations"**

Speaker: Dr. Thomas Gregor, JSPS Post-doctoral fellow, University of Tokyo and Assistant Professor, Princeton University  
 Organizer: Dr. Jonathan Miller, OIST

**December 10 Seminar** at the OITC  
**"Dynamics and precision in early embryonic development"**

Speaker: Dr. Thomas Gregor, JSPS Post-doctoral fellow, University of Tokyo and Assistant Professor, Princeton University  
 Organizer: Dr. Jonathan Miller, OIST

**December 17 Seminar** at the Research Laboratory  
**"Microarray data analysis using graph theory: From visualization to outlier detection"**

Speaker: Dr. Raymond Wan, Kyoto University  
 Organizer: Dr. Jonathan Miller, OIST

**December 19 Lecture** at the UNU Global Seminar  
**"Contributions of neuroscience to understanding human behaviour"**

Speaker: Dr. Gail Tripp, OIST  
 Organizer: United Nations University

**December 19 OIST-IRP Internal Seminars** at the Research Laboratory  
 Speaker: Dr. Jonathan Miller, OIST

**"Transcriptome analysis of brain-specific genes in the *Ciona intestinalis* larva"**

Speaker: Dr. Mayuko Hamada, OIST

**2009 January 13-15 Workshop on Mechanisms of Brain and Mind** at Rusutsu Resort in Hokkaido

Speaker: Dr. Erik De Schutter, OIST etc.  
 Organizer: The Neural Computation Unit, OIST

**January 15 Seminar** at the Bio Center  
**"Evolutionary systems biology of bacterial secondary metabolism ? Solving an old riddle of biochemistry"**

Speaker: Dr. Hoger Jenke-Kodama, University of Tokyo  
 Organizer: OIST

**January 16 Seminar** at the Research Laboratory  
**"Neuromorph/Neuro Count: Automated acquisition of quantitative anatomical data for reconstructing a cortical column in silico"**

Speaker: Mr. Marcel Oberlaender, Ph.D. student, Max-Planck-Institute of Neurobiology  
 Organizer: Dr. Kenji Doya, OIST

**OIST-IRP Internal Seminars** at the Research Laboratory  
**"Ubiquitin proteasome system is essential for the lens fiber differentiation"**

Speaker: Dr. Fumiyasu Imai, OIST

**"Investigating the computational relevance of dendrites"**

Speaker: Dr. Ben Torben-Nielsen, OIST

**January 20 Seminar** at the Bio Center  
**"Feed-forward inhibition controls sensory information processing in cerebellar cortex in mice"**

Speaker: Dr. De-Lai Qiu, RIKEN Brain Science Institute  
 Organizer: OIST

**January 21 Seminar** at the Bio Center  
**"The role of horizontal gene transfer in the evolution of gene networks"**

Speaker: Dr. Alexander Sasha Mikheyev  
 Organizer: OIST

**January 23 Seminar** at the Research Laboratory  
**"Sparse odor representation and odor-taste associative learning"**

Speaker: Dr. Iori Ito, National Institutes of Health, U.S.A.  
 Organizer: Dr. Tomoyuki Takahashi, OIST

**January 29 Seminar** at the Bio Center  
**"Extracting single-trial views of brain activity"**

Speaker: Dr. Byron Yu, Stanford University & Gatsby Computational Neuroscience Unit, University of College London  
 Organizer: OIST

**January 29 Lecture** at Ishikawa Senior High School (Uruma City)  
 Speaker: Dr. Ichiro Maruyama, OIST

## Junior Researcher Retreat

OIST held its first junior researcher retreat at the Seaside House on October 30-31, 2008. The goal of the meeting was to foster a strong scientific community within OIST by showcasing internal research projects, establishing a collaborative network to promote a successful transition into a Graduate University, and by providing a forum for the researchers to explore their future roles at the Graduate University and beyond. The retreat included oral presentations by young researchers from each unit, lectures by a guest speaker and two OIST principal investigators (PIs), and poster sessions. During lunch hour, it featured a career panel discussion, which was an informal session for junior researchers to talk about career choices and career tips with PIs. The guest speaker, Professor George Augustine of Duke University, U.S.A., said he was impressed by the quality of OIST researchers, and that the retreat indicates a certain level of intellectual mass being developed at the institution.



Oral presentation in the Seminar Room



Poster session



Career panel discussion in the Chura Hall

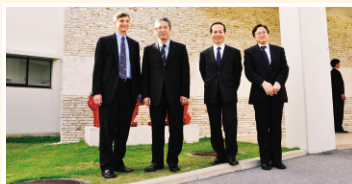


Dr. Augustine asks a question to a presenter

Dr. Karen Rommelfanger and Mr. Werner Van Geit, who themselves are junior researchers, co-chaired the organizing team for the retreat. They were pleased to see that researchers became acquainted with each other during the event and built close working relationships.

## Visit by Minister Tsutomu Sato

Mr. Tsutomu Sato, Minister of State for Okinawa and Northern Territories Affairs, and Disaster Management, visited the Seaside House and the campus construction site on December 7, 2008. Following Executive Director Dr. Robert Baughman's presentation of the graduate university project and explanation about the campus plan, Minister Sato commented that the construction is making steady progress. He expressed his hope that the project will have a positive ripple effect on Okinawa.



(From left) Dr. Baughman, Minister Sato, Director-General Mr. Osamu Shimizu of the Okinawa Development and Promotion Bureau of the Cabinet Office, and Okinawa General Bureau Director-General Mr. Tekehiro Fukuchi

## Visit by Governor Hirokazu Nakaima

Okinawa Governor Hirokazu Nakaima visited OIST on December 1, 2008. Executive Director Dr. Robert Baughman briefed the governor on the current status of OIST at the Seaside House and the campus site. In a subsequent tour of OIST laboratories in Uruma City, he met with Dr. Mizuki Shimanuki of the G0 Cell Unit, Dr. Junichiro Yoshimoto of the Neural Computation Unit, and Dr. Takayuki Naito and Dr. Nozomu Nakamura of the Molecular Neurobiology Unit. After finding out that many distinguished scientists have come from across Japan and all over the world to join OIST, Governor Nakaima pledged continued support from the prefectural government in building a good research and living environment for the researchers.



Governor Nakaima asks a question to an OIST staff at the campus site



(From left) Governor Nakaima, Dr. Naito and Dr. Nakamura

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