



Newsletter

No.2

Center of Excellence for Interdisciplinary Studies on Environmental Chemistry, Ehime University

Global Centers of Excellence (Global COE) Program of
the Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT)

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Report on International Symposium on Biological Responses on Chemical Pollutants

The first International Symposium hosted and organized by Ehime University Global COE Program: "International Symposium on Biological Responses on Chemical Pollutants: Toward Establishing an Asian Network of Environmental Toxicology," was held during March 6-7, 2008 and successfully completed. Having "Biological Responses to Chemical Pollutants" as the central theme, we had 20 oral presentations including 4 keynote lectures and 32 poster presentations. The symposium was attended by about 200 participants.

In session 1 entitled "Effects of Pollutants and Mechanisms

of Toxic Action," Prof. Rudolf Wu from City University of Hong Kong (H.K.) and Prof. Sheikh Raisuddin from Hanyang University (South Korea) delivered keynote lectures. Prof. Wu discussed problems and solutions of environment monitoring, and Prof. Raisuddin introduced a new model organism theory for impact assessment of environmental chemical pollutants. In addition, there were oral presentations on latest mechanisms of toxic action of dioxins and dioxin-like compounds, application of bioassays, and also on ecotoxicology and environmental policy in Singapore and Thailand.

In session 2 entitled "Omics" Technologies in Environmental Toxicology,' Prof. Joe-Seong Lee from Hanyang University (South Korea) and Prof. Stephen George from University of Stirling (U.K.) delivered keynote lectures, introducing genomics technology on intertidal copepod and marine fish. Other speakers presented their research results on -ome analysis on various organisms like yeast, *Caenorhabditis elegans*, ascidian, daphnia to Japanese flounder, medaka, and common cormorants. Analysis combining genomics with metabolomics approaches and a new biosensor to detect environmental toxic substances were also introduced.

Through the 2-day interactive sessions in the symposium, we believe that a basis for establishment a researchers' network in Environmental Toxicology in Asia, the other central theme of the symposium was successfully achieved. As a next step, it is important to develop the network and strengthen the cooperative ties to tackle the internationalized environmental problems, especially the worsening chemical pollution coupled with rapid economic growth.

We are now preparing to publish the details of the presentations in this symposium in the form of a long abstract book.

- Kei Nakayama (Assistant Professor, CMES)





Report on the Annual Progress Report Meeting of the Global COE Program, FY2007

On March 18-20, 2008, the Annual Progress Report Meeting of the Global COE Program “Center of Excellence for Interdisciplinary Studies on Environmental Chemistry” was held at the Green Hall of Ehime University. 16 reports of Sub-theme 1: Status of Contamination, Temporal and Spatial Distribution and Future Trends, 15 reports of Sub-theme 2: Modeling Pollutant Behaviors and Dynamics and 22 reports of Sub-theme 3: Toxic Effects and Risk Assessment were presented by respective project heads, Post-doctoral researchers and PhD course students who have attended this Global COE Program. On March 18, Prof. Jennifer Field, Oregon State University, delivered a keynote lecture.

Since this is the first year progress report meeting of the G-COE program, several questions were asked and detailed interpretations were made on the relationship between chemical pollution and allied research projects during the question hour. In this meeting, collaborative research on Manila Bay, the Philippines, presented by Tomohiko Isobe, Associate Professor, the Global COE (Sub-theme 1), Todd Miller, Associate Professor, the Global COE, Kwang-Hyeon Chang, Associate Professor, the Global COE and Atsuko Amano, Researcher, the Global COE drew the attention of the participants as a positive spiral of development in human resources and education that has close relationship to the interdisciplinary and international approach of the Global COE Program.

- Shusaku Hirakawa (Doctor Course Student, CMES)

Sub-theme 1

The annual progress report meeting was held on 18 March 2008. In this meeting, G-COE researchers belonging to Sub-theme 1 reported their recent and salient findings on the

environmental contamination by Persistent Organic Pollutants (POPs) and emerging POPs in Asia. The reports revealed that the contamination by dioxins and related compounds (DRCs) spread widely and are now becoming highly emerging global pollutants including the developing countries. The researchers reported high concentrations of DRCs in industrialized and urbanized areas by measuring the levels of those chemicals in mussels collected from the Asia-Pacific region. They have also shown that brominated flame retardants (BFRs) are also present in many higher trophic wild animals in Japan. Emerging contamination by hexabromocyclododecanes (HBCDs) has also been shown clearly. Besides these reports using wild animals, interesting research results on temporal trends of several pollutants utilizing the archived specimens at the Environmental Specimen Bank (*es*-Bank) of Ehime University were also presented. Pollution by chemicals derived from electronic waste (e-waste) was also shown to be present. As another part of the Sub-theme 1, antibiotic contamination status was also reported showing positive correlations between rate of occurrence of tetracycline (TC) resistant bacteria and metal concentrations such as Ba, Ga and V in the marine sediments collected from coastal seas around Japan including Tokyo Bay suggesting that metal pollution may contribute to an increase in TC-resistant bacteria.

- Koh Fukushima (Doctor Course Student, CMES)

Sub-theme 2

There were fifteen presentations in the Sub-theme 2 “Modeling pollutant behaviors and dynamics” started at 9 am on 19, March, 2008. Prof. Takeoka delivered the opening talk entitled “Evaluation of environmental behavior, fate and bioaccumulation of Persistent Toxic Substances (PTS) through ecosystem and geographical modeling”, and explained the whole concept of the Sub-theme. Other topics of Sub-theme 2 presented in the meeting included “Environmental changes in coastal marine environments”, “Mathematical model predicting dynamics of chemical pollutants”, “Analysis of ecosystem structure using the stable isotope technique”, “Structure and function of marine plankton community” and “Application of *es*-BANK for chemical pollution studies”. Those presentations were made by G-COE professors and post-doctoral fellows. The

presentations made by the Team Philippines which consisted of young researchers with various expertise were given great attention. The topics of the team were interesting for the audience despite its preliminary dataset on the effect of physico-chemical parameters in the bay and on the chemical pollution status of Manila Bay, the Philippines.

In 2008, the Sub-theme 2 will concentrate more on the studies on “Modeling pollutant behaviors and dynamics in East China Sea”, by engaging members with skill on mathematical modeling. I feel that a really large dataset on East China Sea based on field monitoring is necessary to have more useful mathematical models of not only the East China Sea but also the surrounding areas, for which we have to put enormous efforts to collect more field data in the seas around Japan.

- **Hiroyuki Imai (Doctor Course Student, CMES)**

Sub-theme 3

On March 18-20, “The Annual Progress Report Meeting of the Global COE Program, FY2007” was held. The members belonging to Sub-theme 3 presented the accomplishments and views about “Toxic effects and risk assessment”.

The results of the studies on the effects of various chemical contaminants including zinc and heavy oil on the reproduction, developmental process, immune system, triggered signal transduction of the organisms etc. were presented. These investigations were conducted utilizing the best constructed culture and analytical methods, which include not only exposure and *in vitro* assays conducted in the laboratory but also fieldworks. For instance, there were investigations on the exposure status and metabolism of as in Asian people. Moreover, by monitoring the gene expression profiles of the Baikal seals which were obtained from *es*-BANK, the potential toxic effects of dioxins and their mechanisms were discussed. In the future, construction of tools for assessing toxic effects and risks of chemical pollutants in the environment, through the collation of data and linking of the experimental and field results can be expected.

In this meeting, the participants exchanged a wide range of information. Moreover, comments and suggestions on the methods and future visions on different presentations were given by academes and other researchers, making the discussion more focused on the improvement of each investigation.

- **Mana Nozaki (Doctor Course Student, South Ehime Fisheries Research Center (SEFREC))**

Self-introduction of

Global COE Postdoctoral Research Fellows

Katsutoshi Ito - I am Katsutoshi Ito. I am working as a G-COE

researcher since November, 2007 at the South Ehime Fisheries Research Center (SEFREC), Ehime University. From 1999 to 2004, I received my graduate education at the Graduate school of Biosphere Science, Hiroshima University. My PhD study was on the Dynamics of paralytic shellfish poison (PSP) which is known to cause sporadic food poisoning in human. My findings revealed that pollution with PSP is present not only in the bivalves but also in the gastropods and the starfishes. After graduation, I joined the National Research Institute of Fisheries and Environment of Inland Sea, Fisheries Research Agency and studied the influence of the pollutants in antifouling paints such as tributyltin (TBT), Copper pyrithione (CuPT) and Zinc pyrithione (ZnPT), on marine organisms. We revealed that CuPT has acute toxic effects on fish as TBT. We also demonstrated that TBT had deleterious effects on sperm production in fish. They can be characterized as biomarkers of spermatogenesis by cDNA subtraction and differential display methods.

During the past decade, I studied the dispersion and the effects of two different types of toxins in the marine environment. Both PSP and the antifouling paint pollutions are mainly generated by human activity. My results showed the importance of the study of environmental pollutions. I feel very much concerned about the problem of anthropogenic pollution and I am planning to develop a detoxification system using annelids, by using my present research work.

Sogo Nishimoto - I entered the faculty of agriculture, Ehime University in 1993, and graduated from the Laboratory of Applied Microbiology in 1997 (Presently the Laboratory of Animal Cell Technology) Thereafter, I have studied at the Graduate School of Agriculture, Kyushu University (Master Course), and Graduate School of Medicine, Osaka University (Doctor Course). I have obtained my Ph.D. (Medicine) from Osaka University on March, 2004. This time, I had an opportunity to come back to Matsuyama after an interval of about 10 years. I produced gene-deficient animals (Knockout mice; producing null or non-functional gene in mice using genetic engineering and embryological technology) when I was a doctoral student and post doctoral fellow at Riken. I found the disease appeared as phenotype in knockout mice, from my investigation on the genetic physiologic significance *in vivo*. Furthermore, I rebuilt



the secondary lymphoid tissue and promoted some studies on immunology.

As a research member of Sub-theme 3 "Toxic effects and Risk assessment" in this Global COE program of Ehime University, I want to investigate the risk of the chemical substances on human. Because we can not directly check the influence of chemicals in human body, we must assess the risk in mice as a model animal. Since mice have immune and reproductive systems like human, we can predict the influences of various chemical substances on human biological functions by carrying out experiments on mice. By using mice, we can clearly conclude not only the influences of the chemical substances in the body, but also that of secondary metabolites of such chemicals.

By using effects on mice as my research target, I hope to clarify *in vivo* effects of chemical substances, and extrapolate these results of the risk assessment of chemicals on human.

Hyun-Sil Kang - I am currently working as a G-COE researcher studying toxic effect and risk assessment under Sub-theme 3 of the G-COE program since December 2007. I completed my PhD at the Department of Marine Biotechnology, Jeju National University, Republic of Korea in 2007 February.



During my PhD course, my research was mainly focused on the gene characterization of marine organisms such as marine fish (Flounder, rock bream and puffer fish), marine invertebrates (abalone) and marine parasites which cause diseases in the maricultured fish. My doctoral dissertation was on investigating molecular and morphological characteristics of Scuticociliates isolated from marine fish and development of recombinant vaccine against *Miamiensis avidus*. In addition, I actively participated as a researcher in two main projects. One is "Establishment of dbEST for identification of novel genes from abalone (*Haliotis discus Reeve*) and development of gene transfer techniques for construction of transgenic abalone" funded by Korea Science and Engineering Foundation from 2002 to 2004. The other one is "Analysis of Expressed Sequence Tags (ESTs) and development of useful enzymes from abalone" funded by Marine Bio 21 by the Ministry of Maritime Affairs and Fisheries from 2004 to 2006. In these projects, I successfully constructed the normal and normalized cDNA libraries from disk abalone (*Haliotis discus discus*), analyzed EST data and characterized different protein families such as antioxidants, immune related, calcium regulatory and polysaccharide degrading enzyme related genes using molecular and biochemical analyses.

In this center, I am currently engaging as a researcher investigating of immunomodulatory effect of antibiotics (i.e oxytetracycline) on Japanese medaka (*Oryzias latipes*) through molecular and biological analyses. Antibiotics are commonly used for purpose of therapy, growth promotion and the prophylaxis from animals and to human. A number of chemicals including the therapeutic drugs (i.e oxytetracycline) have polluted the marine environment and induced a variety of immunomodulatory effects on both humoral and cellular immune functions of marine organisms. Therefore, I will characterize the immune related genes of Medaka in molecular level in the fish exposed to antibiotics. At the same time, I will analyze the mRNA expression of immune related genes relating to innate immunity of medaka and flounder during ontogeny to provide the basic information for ecotoxicological effects of pollutants using fish. Even though, I have been studying molecular biology of marine organism for last few years, I had little chance to extend my basic knowledge of ecotoxicological assessment of marine environment. As a member of the G-COE program, I look forward to widening my knowledge on this area, the toxic effect of several contaminants on marine organisms.

Sawako Horai - I am Sawako Horai. I work for CMES as a G-COE researcher since February 2008. I acquired a PhD from Tokyo University of Agriculture and Technology in September 2006. I studied the development of an effective therapy for ATL (adult T-cell leukemia) at the Center for Chronic Viral Diseases in the Graduate School of Medical and Dental Sciences of Kagoshima University since October 2006. Even though I have studied immunology which is a different field from environmental science until two years before, as I came to CMES now, and I started my present research, I feel that the research field for my future life is environmental science.



At present I am engaged in the studies on 1) elucidating the status of heavy metal contamination at e-waste dumping sites in Eastern south Asia, 2) estimating trace element behavior in the food web of Pacific coastal ecosystem and 3) disclosing the metabolic mechanism of Hg in the wild animals such as Javan mongoose and marine mammals which have much higher Hg levels in their livers than other species.

Although I have not acclimatized yet in doing environmental laboratory experiments, I am confident that I can progress gradually in my research with the help of CMES staff and students. I want to learn many techniques and ideas from elite CMES researchers and improve my work. I am in a room at third floor of *es*-BANK which is my working space. I will be

happy that you come and talk research. Thank you!

Research Topics of Doctoral Course Students

Kazumori Yamamoto

“Semantic Web for Earth Observation Data”

As a result of long years of collection and analyses of samples obtained from samples at *es*-BANK and RR2002 project plenty of data are available at the Center for Marine Environmental Studies, Ehime University. Integrated analyses and interdisciplinary researches of different samples are crucial for the development of Earth environment studies. There are always serious problems in the use of such data and database when we attempt to achieve integrated analyses. The collected data usually don't involve the meta-data when a computer needs to the understand semantics of data. Information searching techniques over the data remain simple and primitive. A solution technology called Semantic Web has been proposed recently, which is subject to the description of the semantics of data itself and related data by designing vocabularies of web resources. In the Semantic Web, RDF (Resource Description Framework) is used as machine readable data description model in place of HTML which is human readable description. The RDF statement represents semantics by triple language as shown in Fig.1, which is composed of subject, predicate and object. Data relation-modeled in a problem area by RDF is called ontology (accurate specification of conceptualization).

In the present study, we constructed the Semantic Web for Earth observation data. Many kinds of data obtained from different fields were merged based on the same semantics via common keywords (Fig.2) for interdisciplinary researches. We can also perform advanced searches with reasoning in the near future. It should be noted that collaborations with the researchers and experts who understand semantics very well are crucial to accomplish the accurate ontology.

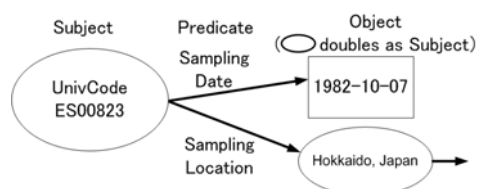


Fig.1 : RDF Description Model



Fig.2 : Visualization Application for Ontology

Jin-Seon Lee

“Investigation on Toxic Mechanism of Dioxins in avian Species”

I am Lee Jin-Seon, Doctoral student of the division of ecotoxicology in the Center for Marine Environmental Studies (CMES).

I entered the School of Pharmacy, Sung Kyun Kwan University, Korea as a pharmacist in 1997. However, two books, “Our Stolen Future” written by Theo Colborn and “Silent Spring” by Rachel Carson which I read by chance in sophomore changed my desires and dreams. Although I was not interested on environmental problems, the information on the risk by environmental chemicals on different ecosystems including human shown by these books shocked me. Professor Chung Kyu-Hyuck who was teaching “Hygiene Pharmacy” related to environmental problems in the school of pharmacy introduced me to Professor Shinsuke Tanabe in Ehime University. After my graduation, I could come to Ehime University as a graduate student of the Special Program in Bioresource Science for Foreign Students from Asian, Africa and the Pacific Rim (AAP) countries supported by the Ministry of Education, Culture, Sports, Science and Technology, Japan for 5 years from 2003 to 2008. Now I am a 3 year doctoral student.

Research in the division of ecotoxicology deals with the toxic effects and risk assessment of environmental chemicals like dioxins on wildlife. For this purpose, an understanding of the molecular mechanisms of dioxin toxicity on wildlife is necessary. Among the species including fish, birds and mammals used for this research, I have been studying aryl hydrocarbon receptor nuclear translocator (ARNT) in avian species, common cormorant and chicken. ARNT is a kind of nuclear receptor and has an important role on dioxin toxicity.

Research on dioxin toxicity began in 1980's and many of its phenomena remain unknown because the research history is short, only of about 30 years. In the beginning of the dioxin research, laboratory animals such as a rat or mouse were used as model animals. After it has been known that dioxin susceptibility is largely different among animal species, even strains, various animals have been accepted as models to investigate mechanism of the differences in susceptibility. By studies using chicken, a sensitive avian species to dioxin toxicity and tern, an insensitive species, it was revealed that structural differences (especially dioxin binding domain) in the aryl hydrocarbon receptor (AHR) - a nuclear receptor which directly binds dioxins to control biological effects, is critical in controlling the differences in dioxin susceptibility. However, only the structural difference in AHR, cannot completely

explain the different susceptibilities, indicating contribution of other unknown factors. In case of common cormorant, an insensitive wild avian species to dioxin toxicity, tissue distribution of ARNT was different from mammals. In addition, novel splicing variants of ARNT were also identified and their expressions were confirmed in my Masters thesis. On the basis of these results, a hypothesis has been assumed the roles of avian ARNT are different from mammalian ARNT and contributes to dioxin susceptibility. I will continue my studies on the functional analysis of ARNT in chicken and cormorant.

Mingzhe Liu

“Lipid Metabolism and Human Diseases”

My name is Mingzhe Liu. I received a Bachelor degree in medicine from Jinzhou Medical University, China, in 2003. In April 2006, I have joined the doctoral course in the Graduate School of Medicine of Ehime University. From September 2007, I am also working as a research assistant supported by the Global COE program.

I am now studying the intracellular transport mechanism of Fras1 and Frem2 mediated by GRIP1 (Glutamate Receptor Interacting Protein 1), which is known as a scaffolding protein to bind and transport proteins such as AMPA (alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid, an artificial glutamate analog) receptor subunits, to plasma membrane. Recently we have accidentally generated GRIP1b knockout mice showing phenotypes like human Fraser syndrome, which is a rare recessive disorder characterized by cryptophthalmos (fused eyelids), syndactyly in renal agenesis. Two forms of GRIP1a and GRIP1b are produced by alternative transcriptional initiations from *Grip1* gene. N-terminal cysteine residue of only GRIP1b is post-translationally modified by palmitic acid. By using GRIP1b knockout mice, I would like to reveal functional differences between GRIP1a and GRIP1b by fatty acid modification on intracellular protein transport.

In my laboratory, we are also working on lipoprotein metabolism in the brain by using several knockout mice to understand physiological interactions between apoE and lipoprotein receptors in the development of Alzheimer disease. Lipoprotein receptors bind and uptake apoE-containing lipoprotein, which is a massive transporter for cholesterol, triglyceride and lipophilic vitamins in the blood circulation. However, the brain is segregated by the blood brain barrier from the circulation and hence the lipid transport system by plasma lipoproteins is not usually available. ApoE is a major apolipoprotein in brain and cerebrospinal fluid, and secreted initially as a lipid-poor lipoprotein by astrocytes. The subsequent interaction of apoE with lipids is crucial for the formation of lipoprotein particles, and recognition and uptake by

lipoprotein receptors. The uptake of lipoprotein supplies cholesterol to neuronal cells, which is utilized not only for neurite outgrowth, synaptic maintenance and proliferation of new dendrite but also for neuronal repair and remodeling. Meanwhile, cholesterol is considered to be related to Alzheimer disease and apoE4 has been shown to cause an increased susceptibility to the disease. The homozygous of apoE4 are considered as a major risk factor during the development of Alzheimer disease at earlier age. I hope that understanding the lipoprotein metabolism in the brain will be useful to elucidate the molecular mechanisms of Alzheimer disease and to indicate future direction of the research towards the prevention and treatment of the disease.

**Report on
the 1st Ehime University Global COE Internship**

We organized the very first Global COE Young Scientists' Internship, with the great help of Dr. Takumi Takasuga (CMES Visiting Professor of Environmental Analytical Chemistry) of the Shimadzu Techno-Research Inc. (STR), Kyoto. The five overseas interns (two Post-doctoral Research Fellows and three postgraduates who are members of the Association of Ehime University COE Young Scientists), and two faculty members (Prof. Annamalai Subramanian and myself) visited STR, Shimadzu Corporation, and Shimadzu Museum, Kyoto, from 7 to 8th February, 2008.

The objectives of this internship were 1) to visit a world-leading research & development business enterprise, 2) to learn experts' inspirations to create novel ideas, and their foci on technological development to satisfy individual needs, and to improve intern's capability for experimental studies, and research and development, all of which fall within the scope of the internship recommendation by the Ministry of Education, Culture, Sports, and Science and Technology, the Government of Japan, and a number of business organizations. The internship agenda is summarized as follows:

Day 1. Thursday 7th February: STR, Shimadzu Corporation, and Shimadzu Museum
09:00-09:30 Introduction to STR
09:30-10:10 What is the STR Business & Research?
10:10-11:00 Laboratory Tour 1: Buildings No. 2 and 3
11:00-12:00 Lecture 1: Pharmaceuticals and Personal Care Products
12:00-13:00 Lunch
13:00-13:40 Introduction to Shimadzu Corporation Inc., by the International Marketing Division
13:40-14:30 Customer Support Centre Tour 1: Analytical

Application Department

14:30-15:00 Customer Support Centre Tour 2: Life Science
BU

15:00-15:30 Visit to Analytical Instruments Factory

15:30-16:00 Discussion

16:00-16:40 Shimadzu Museum Tour

17:30-Reception

Day 2. Friday 8th February: The STR Science and Technology

9:00-10:00 Confirmation of the agenda and free discussion

10:00-11:00 Laboratory Tour 2: Ultra-trace Analysis Centre and Dioxin Laboratory

11:00-11:30 Laboratory Tour 3: Materials and structural analyses Department

11:30-12:00 Lecture 2: Hydroxylated polychlorinated biphenyls (OH-PCBs) and their precursors (Total PCBs) in human serum and cerebrospinal fluid (CSF) samples

12:00-13:00 Lunch

13:00-14:00 Laboratory Tour 4: R & D Department

14:00-15:00 Lecture 3: Contamination profiles of short-chain polychlorinated n-alkanes in foodstuff samples from Japan

15:00-17:00 Lecture 4 (Workshop): 1) Application of ultra-trace analysis for PTS by HRMS Capability and Research for GC-HRMS (11 HRMS) for Dioxin, PCB, POPs, and Brominated Flame Retardant (BFR), and 2) POPs sciences that span anything from QA/QC to cutting-edge analytical methodologies.

The interns visited a number of the state-of-the-art STR laboratories, attended the lectures by STR scientists and engineers, and wrote the internship reports. In particular, each intern was very keen to learn STR science and technology, and thus to exchange views with STR staff in the fecund atmosphere, which assured us that further enhancement of this industry-university alliance will result in a groundbreaking improvement of every COE young scientist's capability.

We thank STR, Shimadzu Corporation, and Shimadzu Museum staff for supporting our internship.



Internship participants in a reception room at the Shimadzu Corporation, Kyoto.

-Dr. Itsuki C. Handoh (Assistant Professor, CMES)

Report on Global COE Lecture Series 1 by Prof. Kurunthachalam Kannan

The first "G-COE Lecture Series" was held at Ehime University from January 21 to 23, 2008. Strengthening the interdisciplinary skills of young researchers to international standards is the main purpose of the present G-COE; therefore, this Lecture Series was



planned as a part of the G-COE program. Prof. Kurunthachalam Kannan, a Department of Environmental Health Sciences, School of Public Health, State University of New York was invited to give a series of lectures. Prof. Kannan is one of the world-class researchers playing an active part in the field of environmental sciences. He lectured mainly on the environmental pollutants (Perfluorochemicals, Polycyclic Musks and Perchlorate) which have attracted great attention as new POPs (Persistent Organic Pollutants). He talked about these contaminants from various angles such as physicochemical properties, environmental behavior and fate, accumulation properties and toxic effects. The audience comprising of mainly bachelors, graduate course students and post doctoral fellows of Ehime University listened to the lectures eagerly because these contaminants are included in daily use commodities (shampoo, deodorants, perfumes, etc.) which we use in every day life. In my opinion, Prof. Kannan put forward his study in a comprehensive and systematic manner and, thus, it was very interesting and stimulating because my research theme is POPs in human and wildlife. These lectures not only increased our knowledge but also provided us with excellent opportunities to think about how we should design our research. I feel that such lectures should be arranged in future and if there is such an opportunity, definitely I want to participate.

- Masayuki Someya (Doctor Course Student, CMES)

Report on Global COE Lecture Series 2 by Prof. Jennifer Field

The second lecture series of the Global Center of Excellence in Ehime University was held from 16th to 17th March, 2008. Prof. Jennifer Field from the Department of Environmental & Molecular Toxicology, Oregon State University, USA was invited to give lectures on fullerene nanomaterials, fluorochemicals in the environment and tips for publishing in high impact journals such as Environmental Science and

Technology (ES&T). Prof. Field has been working on these lines for almost a decade and based on her professional achievements she has currently been appointed as Associate Editor of ES&T, which is one of the top journals in the field of environmental sciences. Prof. Field's first lecture was on fullerene nanomaterials, in which she stressed the need for doing more research in this area as the fullerene nanomaterials are widely used and ubiquitously present in the environment, yet not much is known on their occurrence, behavior, transport and toxicology. In her second lecture, she gave an overview of a decade of research on fluorochemicals in the environment, including her own work on developing new methods for detecting perfluorinated surfactants. Throughout her presentations she emphasized the need for novel approaches for a successful researcher. Her presentation on "Getting published in high ranked journals: The view from one editors chair" was very informative and useful. She gave a number of useful tips and suggestions on the structure and arrangement of the text while writing scientific papers, how to answer the reviewers' comments and what the reviewers expect while reviewing papers. She was very open to discuss the editorial policies of ES&T. The lectures were well attended by most of the graduate students, post doctoral researchers of the G-COE and we had lively discussions after each lecture. I do hope we continue to have such kind of lectures by eminent scientists.

-Dr. Karri Ramu (JSPS Postdoctoral Research Fellow, CMES)

Recent Activities of the Association of Young Scientists

There are many post-doctoral research fellows and doctoral course students in CMES. These young scientists have established an association and held self-motivating meetings called as "Wakate no Kai". One of the main objectives of the meeting is to establish a network of young-scientists. The activities of the Association include seminars, workshops, symposia, etc. For further information about our association, please see the first volume of this newsletter.

Here, I would like to briefly introduce the recent activities of our Association. We invited Dr. Kouzu from Kyoto University and held a workshop on 25 January 2008. After his explanatory lecture on ecological research using stable isotope techniques, we had fruitful discussion with him.

On 19 April, purpose and focus of the Global COE Program in Ehime University was explained by Professor Shinsuke Tanabe and Prof. Shin-ichi Nakano, the speeches being mainly intended for the new G-COE members who have entered during this academic year (2008-'09). Thereafter, Dr. Todd Miller and Dr. Amano from "Team Philippines" talked about their cooperative study done in Manila Bay, the

Philippines. The "Team Philippines" is a collaborative research project hosted by CMES young scientists, and through the "Wakate no Kai" activities. We would like to construct such further research projects among young scientists.

We plan to hold monthly meetings from June 2008, and introduce what the young scientists did so far and doing now at CMES for their individual research topics. In order to activate and motivate further interest among our members, we are looking forward for the participation of not only the CMES members but also scientists belonging to other associations and institutions all over the world.

-Dr. Hitomi Yamaguchi (Postdoctoral Research Fellow, CMES)

The Brochure of "Outline and Profiles of Global COE Program"

The brochure "Outline and Profiles of Global COE Program" has been issued. The 56 pages brochure consists of "Message from the Leader of the Global COE Program", and introductory contents of "Outline of Global COE Program", "Academic Programs", "Research Programs", "Environmental Specimen Bank" and "Profiles of Program Members". The PDF of brochure is downloadable from the homepage, <http://ehime-u.cyber-earth.jp/g-coe2007/en/report/index.aspx>.

You may also contact our office (global`at`dpc.ehime-u.ac.jp): Please replace `at` with @, if you need the hard copy.

- Dr. Hisato Iwata (Professor, CMES)

Editor's note

This issue deals with articles and reports that introduce the young researcher's activities including profiles of new COE researchers, research topics of doctoral course students, participation report of internship, and activities of "Association of Young Scientists".

-Hisato Iwata

Global COE Newsletter No.2

July 21, 2008

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URL

CMES:

<http://www.ehime-u.ac.jp/~cmes/e/cmese.htm>

Global COE Program:

<http://www.ehime-u.ac.jp/~gcoe2007/en/>