

**Cutting Edge Science and Technology in Chemistry and Materials  
- A Cooperative Asian Education Gateway for a Sustainable Society**

**Nagoya University\* and Tohoku University**

**Project Leaders**



**Takahiro Seki\*** Nagoya University\*, Graduate School  
of Engineering, Professor

**Kentaro Tanaka** Nagoya University, Graduate School of  
Science, Professor



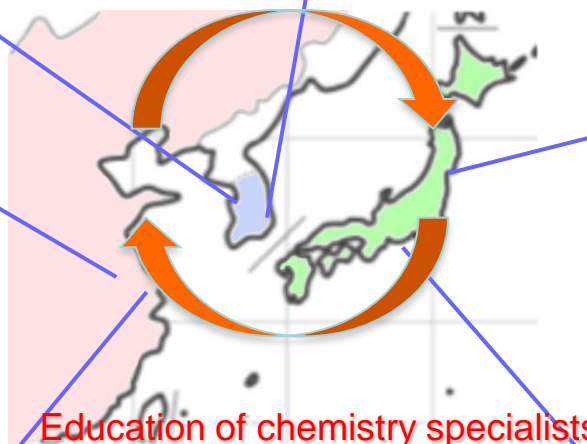
**Tohoku Leaders**

**Akihiro Morita\*** Tohoku University, Graduate School of  
Science, Professor

**Takayuki Doi** Tohoku University, Graduate School of  
Pharmaceutical Sciences, Professor



# Creating an Organization for Innovative Education in the Fields of Chemistry and Material Science in Asia to Contribute to Sustainable Society

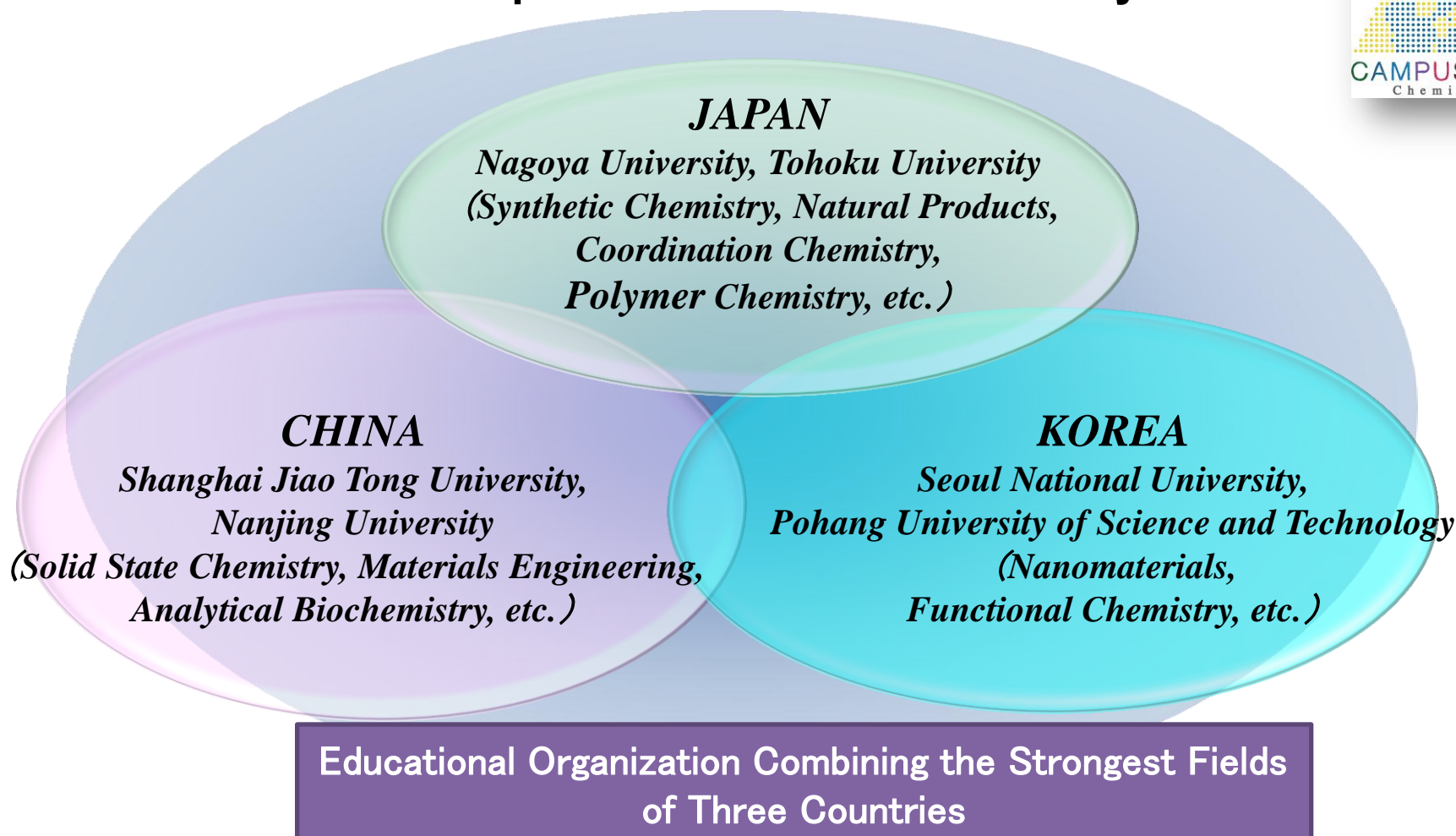


Producing leaders with a global approach in the fields of Chemistry and Material Science

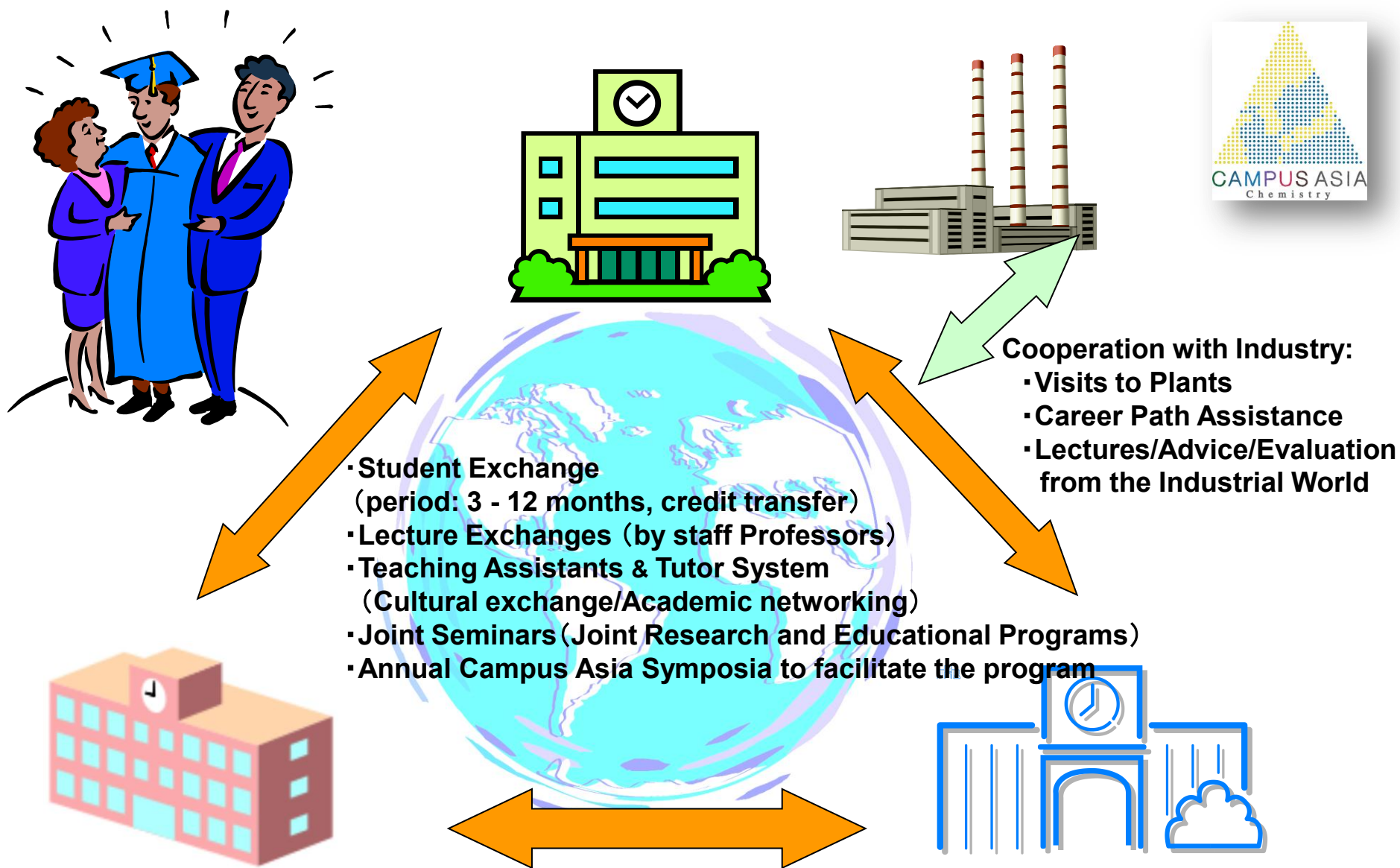


# Current Conditions and Strong Points for the Establishment of the Educational Organization

## Nurturing Chemists with a Global Mindset for the Development of Sustainable Society



# Plan for the System of **Nurturing Specialists who can Think and Act on a Global Scale** in the Most Important Areas of Science





# Organization of Campus Asia Activities

- **Launching Homepages**

- Main Campus Asia Homepage:

<http://campusasia.apchem.nagoya-u.ac.jp/>

- Homepage of the Tohoku University Campus Asia Program

<http://iremcc.pharm.tohoku.ac.jp/~campusasia/>

- **Building International Exchange Infrastructure Targeted Towards Formation of Cyber Campus**

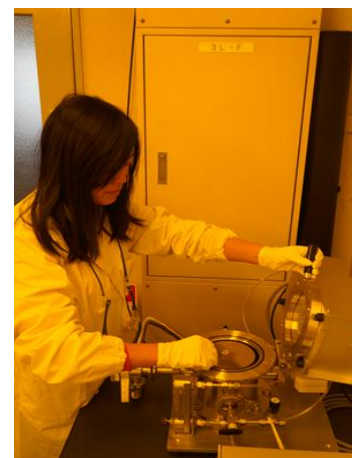
- Installation of TV Conference Equipment

- Meetings between Nagoya and Tohoku Campus Asia offices
- Science and engineering information exchange among 6 Universities of 3 Campus Asia Programs in Japan
- Meetings between Campus Asia Nagoya Office and Nagoya University Shanghai Office

- **Building International Exchange Infrastructure**

- Associate Professor responsible for the Campus Asia Program, **Ilya. D. Gridnev** (Russia), was hired to support the development of international exchange and educational activities

- Students wishing to participate in exchange programs are hired as Teaching Assistants (TA)



# Organization of Campus Asia Project II

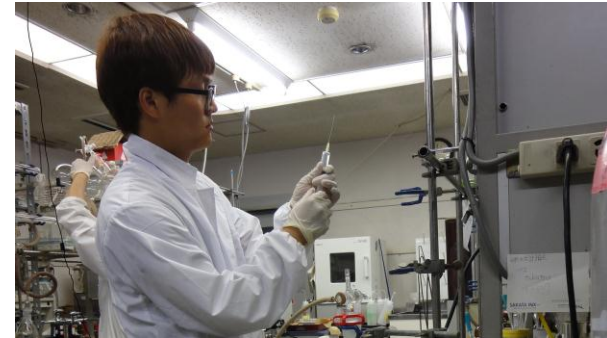
Committee	Affiliation
Takahiro Seki	Nagoya University, Graduate School of Engineering, Professor
Akihiro Morita	Tohoku University, Graduate School of Science, Professor
Xing-Hua Xia	Nanjing University, School of Chemistry and Chemical Engineering, Vice Dean
Yong Zhang	Shanghai Jiao Tong University, School of Chemistry and Chemical Engineering, Vice Dean
Byeong Moon Kim	Seoul National University, Department of Chemistry, Chair
Kyo Han Ahn	Pohang University of Science and Technology, Department of Chemistry, Professor

Evaluation Board	Affiliation
Dr. Yoshio Okamoto	Harbin Industrial University, Chair Professor (Academic)
Dr. Arimitsu Usuki	Toyota Company Central Laboratories, Director (Industry)

# Student Exchange in Campus Asia Project

- **Student Exchange Program**

In Japan this program is mainly targeted at graduate students. Grades from the Host University are recognized by the Home University. The length of stay is **3 - 12 months**. Students choose the University they would like to visit. During the visit, they carry out joint research in the laboratory of their choice and attend special classes at the Partner Universities.



- **Collaboration with JASSO (Japan Student Services Organization) Program**

JASSO's program is intended for students who cannot afford a 3 months or longer absence from their universities. This framework provides flexible opportunities to match the academic situation of the students and Partner Universities.

- **Exchange of Scientific Presentations**

Students are given the chance for direct academic exchange through summer schools, joint seminars, educational and research trips and international conferences.



# Terms and Conditions for Student Exchange between China/Korea/Japan

	Students to be dispatched to Korea/China from Japan	Students to be accepted in Japan from China/Korea
<b>Requirements</b>	Minimum English skills TOEFL IBT 70 (PBT520) Top academic performers with high motivation	
<b>Academic year</b>	Graduate students	Graduate and undergraduate students
<b>Tuition fee exemption</b>	An “Inter-University Agreement” is concluded between Partner Universities.	
<b>Credit/Grade system</b>	Maximum 10 credits can be awarded	International Grades System appropriate for obtaining GPA is offered
<b>Courses in English</b>	Each University provides a list of available classes in English	
<b>Studies Support</b>	Practical English Courses useful for Chemistry field	A Teaching Assistant is assigned to help each visiting student
<b>Financial Support for Students</b>	<ul style="list-style-type: none"> <li>- Travel expenses shall be borne by the Home University</li> <li>- Scholarships/Accommodation fees/Research costs shall be borne by the Host University</li> </ul> (The schedules of the visits are adjusted to the semesters of each University)	



# Student Mobility (Inbound/Outbound between China/Korea/Japan)

AY 2011-2012

Data for 2011-2012	Inbound			Outbound		
	China	Korea	Total	China	Korea	Total
Exchange Students (3 months or longer)	<b>10</b>	<b>2</b>	<b>12</b>	<b>0</b>	<b>2</b>	<b>2</b>
Short visit (1-2 months, JASSO)	<b>3</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>5</b>	<b>5</b>
Summer School, Symposia, etc.	<b>3</b>	<b>2</b>	<b>5</b>	<b>19</b>	<b>5</b>	<b>24</b>
Total number of students	<b>16</b>	<b>7</b>	<b>23</b>	<b>19</b>	<b>12</b>	<b>31</b>

# Student Mobility (Inbound/Outbound between China/Korea/Japan)

## Plan for AY2013

Plan for 2013	Inbound			Outbound		
	China	Korea	Total	China	Korea	Total
Exchanging Students (for more than 3 months )	8	4	12	2	6	8
Short-term visits (1-2 months, JASSO)	0	2	2	0	3	3
Summer School, Symposia, etc.	3	2	5	5	20	25
Total number of students	11	8	19	7	29	36

# Credits Awarded in 2011-2012

## Granting of Credits (Inbound Students)

Home University	Credits Obtained	No. of Students	University granting the Credits
POSTECH (B4)	15	1	Nagoya University, School of Science, NUPACE
SJTU	4	7	Nagoya University Graduate School
NJU	1	2	Tohoku University Graduate School
SJTU	2012-2013 Exchanging	(1)	Tohoku University Graduate School
SNU	2012-2013 Exchanging	(1)	Tohoku University Graduate School
Total		10 (12)	

## Granting of Credits (Outbound students)

Host University	Credits Obtained	No. of Students	University granting the Credits
POSTECH	2	6	Tohoku University Graduate School
SNU	2012-2013 Exchanging	(1)	Tohoku University Graduate School
POSTECH	2012-2013 Exchanging	(1)	Tohoku University Graduate School
Total		6 (8)	

# Campus Asia Symposia

Staff members and students from 6 universities get together, report research results, exchange information and deepen friendly relations. The situation of the student exchanges and future perspectives in this field are also discussed.

## ◆ Kick-off Symposium

## <Nagoya University, March 12-13, 2012>



First Campus Asia symposium  
(Nagoya University)



## ◆ Second Campus Asia Symposium

## <Nanjing University, March 12-13, 2013>



Second Campus Asia symposium  
(Nanjing University)



## ◆ Third Campus Asia symposium

## <Seoul National University, November 7-9, 2013>



# Diverse Exchange 1

## ◆ Exchange Lectures (Staff member visits)

Shared lectures between Partner Universities ⇒  
Even while in their own countries students can learn  
about research activities abroad

- June, 2013: **Prof. T. Seki** Shanghai Jiao Tong University
- August, 2013: **Prof. T. Seki** Seoul National University



Shanghai  
Jiao Tong  
University

## ◆ T.A. System (Help in research and study, cultural exchange, networking)

One TA student is assigned to each exchange student ⇒  
Facilitates daily/academic life and networking in a foreign country  
2011-2012: 23 TA students were assigned to the exchange students



Seoul National University

## ◆ Themed Seminars (Seminars among Partner Universities: Lectures for graduate students)

Joint seminars in specific research fields ⇒ Discussion of the latest achievements in  
Science and Technology November 2013:

Seminar on Molecular Simulation to be given by **Professor Huai Sun, SJTU**

## ◆ Summer School (2012/8)

This event is organized by graduate students. Doctoral students from Asia, Europe and America are invited. The purposes of this meeting are **to give practice in organization of international conferences** to graduate students and **improve friendly relationships between students** from various countries

## ◆ D2 Research Discussion Meeting (2012/11)

Doctoral chemistry students in their second year report on their research in English to one another. This inter-faculty symposium helps to **prepare students for international exchange**

## ◆ Local Research Meeting (2012/12)

Academic Advisors of exchange students from China and Korea were invited **to talk about their joint research projects**, as well as discussing the student exchange



**TOHOKU UNIVERSITY'S  
CHEMISTRY SUMMER  
SCHOOL 2013**  
Tohoku University

**Schedules**  
Aug. 29 (Thu) 9:00-18:25  
(Registration starts at 8:00)  
Aug. 30 (Fri) 9:00-18:30

**Venues**  
Science Lecture Hall  
and Science Complex A  
(Graduate School of Science, Tohoku University)

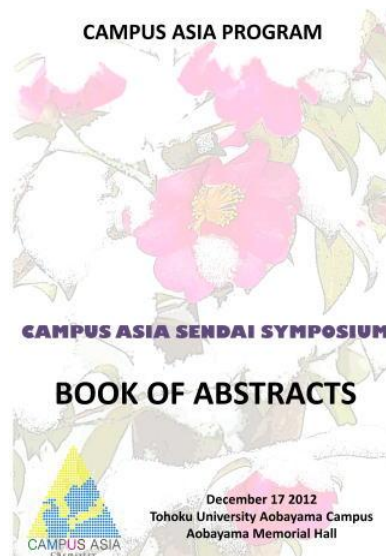
**Campus Map**

**Plenary Lectures**  
Prof. Masaya Mitsuishi (Institute of Multidisciplinary Research for Advanced Materials)  
"Hybrid Polymer Nanossemblies for Plasmonics Applications"  
Prof. Itaru Honma (Institute of Multidisciplinary Research for Advanced Materials)  
"Nanomaterials and Science for the Next Generation Lithium Ion Battery Technology"  
Prof. Naoki Kanoh (Graduate School of Pharmaceutical Sciences)  
"Chemical Strategies for Discovering Unidentified Protein-Small Molecule Interactions"  
Prof. Shigefumi Kuwahara (Graduate School of Agricultural Science)  
"Total Synthesis of Indoliterpenes"

**Invited Lectures**  
Junying Chen (Shanghai Normal University)  
Jeffrey Clinton Holder (California Institute of Technology)  
Adam William Schuman (University of Illinois)  
Yern Seung Kim (Seoul National University)  
Cheng Chi (National Taiwan University)  
Campus Asia Program : A Cooperative Asian Education Gateway for a Sustainable Society  
<http://ircmc-pharm.tohoku.ac.jp/~campusasia/SUSC.html>  
Benjamin Rausch (University of Georgia)  
Dongpo Xu (Shanghai Jiao Tong University)  
Philip Harford (University of Cambridge)  
Janis Veliks (University of Zurich)  
Jakob Franke (University of Zurich)  
TOHOKU UNIVERSITY

Summer School

CAMPUS ASIA PROGRAM



**CAMPUS ASIA SENDAI SYMPOSIUM**

**BOOK OF ABSTRACTS**

December 17 2012  
Tohoku University Aobayama Campus  
Aobayama Memorial Hall

Sendai Symposium

# Diverse Exchange 3

## ◆ Educational and Research Trips

### Strengthening support for students' research trips

1. Campus Asia Staff members and Japanese students planning to go abroad visit universities in China and Korea to prepare for future joint research projects
2. Supporting preparation of research reports for international students

Seoul National University & POSTECH (2012/12 - 2013/1)  
Shanghai Jiao Tong University & Nanjing University (2013/3)



Shanghai Jiao  
Tong University

## ◆ SJTU Interdisciplinary Seminar (2013 3/14 - 3/15)

1. Four staff members and 12 students from Nagoya University participated in the Seminar Laboratories Tour, guided by students who had previously been on exchange at Nagoya University
2. Discussion on the research schedules of the exchange students coming to Shanghai Jiao Tong University in 2103 and for the Chinese students coming to Nagoya University in 2013



POSTECH

## ◆ Industrial tour for inbound students

2012.11.29

Toyota Motor Corporation, Takaoka Factory

2013.9.18

TOHO GAS Co., Ltd., Chita Midorihama Factory

Pfizer Inc., Nagoya Factory



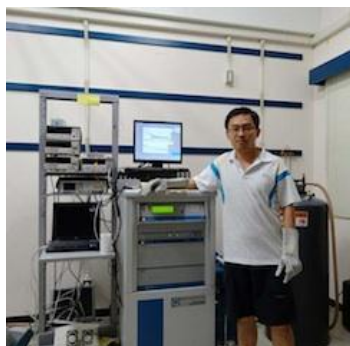
Pfizer Inc., Nagoya Factory



# Points of Progression: Results of the Exchange

## ■ Research Papers

◆ Tohoku University/Nanjing University/POSTECH  
*Inorganic Chemistry* **2013**, No.52, pp8342-8348



Visiting Student from Nanjing University <Tohoku University>

◆ Nagoya University / Seoul National University  
*Advanced Materials*  
submitted August 2013

## ■ Collaboration between 4 universities in 3 Campus Asia Programs for students in Science and Engineering fields

- Kyushu University
- Tokyo Institute of Technology
- Nagoya University/Tohoku University

Introduction of Campus Asia Program to  
Japanese Chemical Society (40000 Members)  
"Chemistry and Industry" August 2013

東海支部 化学・材料分野のキャンパスアジアプログラム

### はじめに

環境・エネルギー問題に代表されるように、持続的な社会の構築は人類にとって喫緊の課題です。その解決に向け化学・材料分野の科学技術の役割はますます大きくなっています。このような状況において、平成23年度から5年計画にて、文部科学省・日本学術振興会の「大学の世界競争力強化事業」、日中韓の3ヵ国による化学系キャンパスアジア事業「持続的な社会に貢献する化学・材料分野のアジア先端協働教育拠点の形成」が採択されました。本事業では、環境問題等で重要な化学・材料教育のアジアにおける中核拠点の形成を目的として、日本（名古屋大学）、中国（南京大学）、韓国（ソウル国立大学校）が参加しています（「は各国における幹事大学」）。

本事業の主な内容は、大学院学生を対象とした単位互換に基づく3～12ヵ月の相互交流（受入国が学生の生活費を支援）、公開シンポジウムの開催、数日間程度の集中セミナー開催、教員の相互の交流に基づく集中講義の実施などです。

### 日本・中国・韓国間の交換留学

交換留学には、基本的に大学院生を派遣し、学生が希望する他国の研究室に一時所属して研究活動を通じた実習を行います。また、各大学に特徴的な講義を受講し単位を取得します。2012年度は、

名古屋大学・東北大学から7名の学生を派遣しました。一方、中国・韓国からは、22名の留学生を受け入れました。交換留学以外にも「教育交流検討会」、「分野間交流」、「サマースクール」などの短期間の相互交流も行われており、2012年度は、中国・韓国への派遣は31名に上ります。



日中韓6大学の夢田君を一堂に集めた公開シンポジウム（南京大学にて）



実験中の上海交通大学からの交換留学生（名古屋大学にて）

### 3ヵ国持ち回りの公開シンポジウム開催

名古屋大学で開催された第1回キャンパスアジア公開シンポジウムに引き続き、第2回公開シンポジウムが2013年3月11～13日に南京大学で開催されました（写真）。連携大学6校より、約100名が参加しました。日本の大学から、11名の教員による講演及び13名の学生によるポスター発表を行いました。

シンポジウム終了後、各校のプログラム責任者による運営会議が開催され、次回キャンパスアジア公開シンポジウムは、2013年11月にソウル国立大学校で開催されることが決まりました。

### おわりに

2013年5月24日、キャンパスアジア理工系4大学が連携し事業を展開していく目的で、協定文書・意見交換がなされました。

名古屋大学、東北大学、九州大学、東京工業大学の構想責任者から、事業活動の現状報告がなされ、事業の詳しい内容説明に加えて、課題・問題点なども話題にのぼりました。今後、事業の幅を広げ、共同で事業を推進していくことも視野に入れた理工系4大学間で連携していくことが決められました。

2013年度は、各大学の学生向けサマープログラムなどの情報を公開し、それらのプログラムに理工系連携大学の学生または留学生が参加することが決められ、すでに参加者募集が始まっています。

本プログラムの実施によって、日中韓の学生や若い研究者が互いの文化の理解を深めながら化学・材料研究を加速させ、さらには将来3ヵ国の産業の活性化へと結びついていくことを願っています。

（関 隆広（名古屋大学大学院工学研究科））

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# Problems Encountered

	Problem	Measures	Results • Necessary Activities
Travel expenses	Situation of travel expense support for Chinese students visiting Japan in 2012 was unclear	China • Japan Vice Deans' Meeting (2013/3/14):	2011/3 At the Symposium held at Nagoya University, 6 universities from 3 countries agreed on financial support for students, but there was some misunderstanding in the methods of application →2013/4 According to the students who had returned to China, <b>their travel expenses were reimbursed</b>
Credits	It was difficult to correlate the credit system with Chinese Universities	Japanese Universities issue transcripts for both inbound /outbound students	For example, at Nagoya University there is no credit system for doctoral students → <b>In the case of international exchanges, papers and joint research must be also considered as achievements aside from credits</b>
Stipend application period	It is difficult to apply to programs in Chinese universities due to the short application period	Apply an individual approach to each case	Since there are differences in the lengths of semesters in Japan, China and Korea, it is important to adjust the application period properly in each case
Housing	Shortage of housing for exchange students	Also make use of private housing	There are differences in living conditions in the various dormitories →Rent housing only after giving a detailed explanation of the conditions to the student and getting his/her agreement

# Objectives of the present Program



## ● Develop a Chemistry Platform among China/Korea/Japan

Formation of Consortium in Chemical Research between Japanese, Chinese and Korean Universities on the basis of the current Program

## ● Expand the Chemistry Platform to Asia

Expansion of cooperation to the whole Asia

## ● Contribute to the development of science

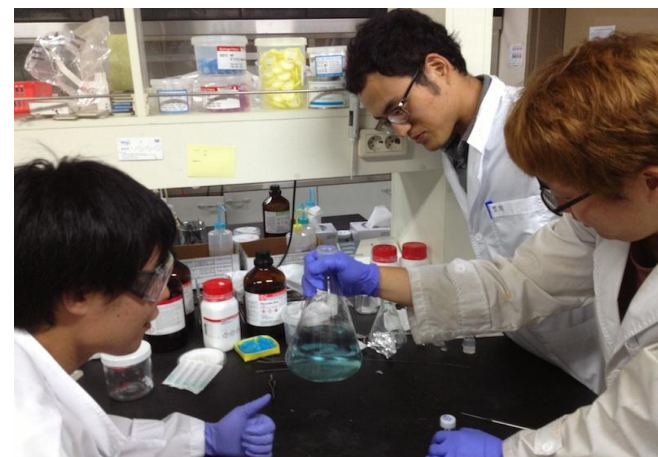
Active participation in improving the level of research in Asia



***International exchange between active researchers in Asia***

## ● Contribute to Society

Education of young researchers with a global outlook and a profound knowledge of fundamental science coupled with high professionalism



# Thank you for your kind attention

