Official Greetings by President of Chulalongkorn University ........................................... 2
Official Greetings by President of Kasetsart University ...................................................... 3
Official Greetings by President of Nagoya University .......................................................... 4
About Academic Consortium 21 (AC21) .............................................................................. 5
About AC21 International Graduate Summer School ............................................................... 6
Program ................................................................................................................................. 7
Guests to Deliver Addresses ................................................................................................. 12
Keynote Speakers and Lecturers: Short Biography and Abstracts ....................................... 14
A Week in Review .................................................................................................................. 34
Results of Questionnaire Survey ......................................................................................... 38
List of Participating Universities ............................................................................................ 39
List of Participants ................................................................................................................ 40
List of Patronage Organizations and Sponsor Companies/Organizations ....................... 42
Organizing Committee ......................................................................................................... 43
Biography

Professor Pirom Kamolratanakul, M.D., M.Sc. earned a Bachelor’s Degree in Medicine from Chulalongkorn University in 1972, a Master’s Degree in Clinical Epidemiology from McMaster University in Canada in 1983, a certificate in Clinical Economics from the Wharton School, U.S.A., in 1987, another Master’s in Clinical in Epidemiology from the University of Pennsylvania in 1990 and a certificate in Management Training from the University of Toronto in 1991. He passed the examinations of the Thai Medical Council for the Thai Board in General Practice in 1976, for the Thai Board in Preventative Medicine in 1985 and the Thai Board in Family Medicine in 2002. In 2001, he attended the National Defence Programme of the National Defence College of Thailand. He has been Professor in the Department of Preventative and Social Medicine at Chulalongkorn University since 1992. Before being appointed President of Chulalongkorn University, he served as Director of the King Chulalongkorn Memorial Hospital, the Thai Red Cross Society and Dean of the Faculty of Medicine, Chulalongkorn University from 1999 to 2007. He has served on advisory health committees at both national and international levels. His research projects on epidemiology have earned him awards and prizes in Thailand and abroad. His publications include academic papers, research publications and books related to epidemiology and the economic evaluation of diseases.

President Vudtechai, President Hamaguchi, Distinguished Guests and Participants at this AC21 International Graduate Summer School.

It is an honour for Chulalongkorn University and its co-hosts—Nagoya and Kasetsart Universities — to welcome you all to the First AC21 International Graduate Summer School that is being held from May 31st to June 4th, 2013. A special event that coincides with this academic gathering is the centenary of the establishment of the Faculty of Engineering at Chulalongkorn University on June 1st, 2013.

As you all know, the main theme of this five-day academic event is “Green Science and Technology for a Sustainable Future” and the lectures and presentations are grouped into two sub-themes—“Green Mobility and Energy” and “Agricultural Sciences and Food Production,” which are the major concerns in our urbanized society. We have all become aware that our easier and more comfortable lives have been achieved at the expense of our natural environment.

This venue is where 81 graduate students from members of the AC21 as well as non-members from Thailand and its neighbouring countries are to meet and work together in order to achieve the objective of the forum. Here they will learn from a series of lectures by Thai and international scholars as well as experts in green science and technology. We hope that these lectures will inspire and motivate the young participants to develop the group projects that they will be presenting at the concluding session of the event. This academic meeting has been organized to provide the opportunity for academics and interested parties to come together to discuss and discover ways of coping with and thus reduce environmental problems. It is our earnest hope that the results of our discussions will be put into practice and be used as a way of motivating our society to keep our future world green and ensure an adequate supply of agricultural products to sustain our population.

I would like to bring your attention to the fact that to celebrate its milestone, the Faculty of Engineering, in cooperation with Nagoya University, has invited Professor Dr. Ryoji Noyori, the Japanese Nobel Laureate in Chemistry, to give a plenary address entitled, “Science Shapes Your Future” this afternoon. His speech will certainly inspire the participants at this event to improve their teaching and research activities.

Again, on behalf of the administrators of the host universities and the organizing committee, I would like to welcome you to this AC21 International Graduate Summer School. I hope you will enjoy your stay in Bangkok and will be successful in all your activities over the next four days of discussion.

Professor Pirom Kamolratanakul, M.D., M.Sc.
President, Chulalongkorn University
Bangkok, Thailand
Biography


After his graduation he then joined Kasetsart University as a lecturer with his expertise in Dynamic of Machinery. During his time in Kasetsart University, he also obtained several administrative position such as Faculty Secretary (1980-1990), Associate Dean (1990-1992) and Dean (1992-2001) before being appointed to be Vice President for Administration (2001-2007). In 2007 he won the Presidential Election and was designated by H.M. the King to be the President of Kasetsart University since then.

As a faculty member, President Vudtechai Kapilakanchana produced at least two text books entitled as “Mechanism & Dynamic of Machinery” and “Gear” while one of his researches “Research and Development on Rice Thresher” has provided essential idea and frameworks in Agricultural Machinery education. At present, he is always invited to be guest speaker in several universities in Thailand, namely, Faculty of Engineering, Siam University.

Dr. Michinari Hamaguchi, President of Nagoya University, Professor Pirom Kamolratanakul, President of Chulalongkorn University, honorable speakers, all participants, distinguished guests, ladies and gentlemen.

On behalf of Kasetsart University, it is my great pleasure to extend a very warm welcome to all of you. Kasetsart University is very privileged to co-host “the AC21 International Graduate Summer School” today.

Kasetsart University, Chulalongkorn University and Nagoya University have had a long history of academic collaboration through the Academic Consortium 21 Platform. Several activities have been conducted. Among of them includes a forum that gives students from AC21 member institutions the opportunity to discuss international issues.

This year, “the AC21 International Graduate Summer School” is jointly hosted by Kasetsart University, Chulalongkorn University and Nagoya University. Its major objective is to enhance the academic strengths particularly of graduate students from AC21 member institutions and those from non-AC21 member institutions in the neighboring countries of Thailand. The main theme of this forum focuses on “Green Science and Technology” that is the most essential trend in the 21st Century. All mankind learn to get back to living in harmony with nature while they keep up with the advancement of science and technology innovations. This new paradigm will definitely bring forth our sustainable global society.

Moreover, this special forum values the friendship among all participating graduates. They will be better connected with our activities, designed to motivate them not only to share their knowledge of science and technologies, but to form personal linkages with one another.

Ladies and gentlemen, may I wish you all every success with this event and a memorable time in this beautiful city of Bangkok. Once again, welcome to the AC21 International Graduate Summer School. And we are also awaiting to welcome you all to our green campus during the first to the fourth of June.

Thank you.
Biography

President Hamaguchi earned a PhD in medicine from Nagoya University after graduating from the Nagoya University School of Medicine and having served as a resident physician at Ogaki Municipal Hospital. He was appointed Research Associate at the Nagoya University School of Medicine in 1980, and since then, he has been working at Nagoya University, except for the time he pursued his research at Rockefeller University in the U.S. from 1985-1988. During his service at Nagoya University, he has served as Dean of School of Medicine and Director of the Supporting Center for Medical Research and Education before becoming the President of Nagoya University in April 2009.

His scholarly interest is Pathological Medical Chemistry. His research group has focused on signaling pathways in cell growth, transformation, and tumor invasion and the analysis of the signaling critical for tumor invasion and metastasis, including the production and activation of matrix metalloproteinases (MMPs), in order to clarify the mechanisms that contribute to the invasion and metastasis of human cancer cells and to develop molecular tools that can inhibit tumor progression. He has published a number of reviewed original papers in the pathological medical chemistry area. He currently serves as a Board Member of ‘Cancer Biology & Therapy,’ and board members of leading academic societies including Japanese Cancer Association and Japanese Biochemical Society.

On behalf of Nagoya University, one of the co-host universities of the AC21 International Graduate Summer School, I would like to offer our warmest welcome to all students, our distinguished guests, staff members of patronage organizations and sponsoring companies, keynote speakers, lecturers, and delegates of the AC21 member universities.

AC21 celebrated its 10th Anniversary in June last year. We are very grateful for the support and cooperation provided to AC21 by the member universities, governmental institutions, and companies, which has helped AC21 expand activities such as the AC21 International Graduate Summer School, and has enabled Nagoya University to manage the General Secretariat of this international-scale consortium.

AC21 was established on June 24th 2002 at the International Forum 2002, hosted by Nagoya University. The Forum brought together presidents and high-ranking delegations from twenty-four of the world’s leading education and research institutions, and resulted in the founding of AC21 in order to contribute to the global knowledge sector by forming an international academic network comprised of educational, research and industrial organizations throughout the world.

Looking back on the past ten years, the environment surrounding us has changed drastically. As both the positive and negative impacts of globalization were brought to public notice, awareness of global issues has grown. These global issues cannot be solved without international collaboration, which the international academic consortia are designed to promote.

The main theme of AC21’s new project, the “AC21 International Graduate Summer School,” is “Green Science and Technology for a Sustainable Future.” The AC21 International Graduate Summer School addresses two sub-themes dealing with the current global issues “Green Mobility and Energy” and “Agricultural Sciences and Food Production.” I hope the AC21 International Graduate Summer School will help promote greater understanding of these global issues and also enhance intellectual exchange among the scholars, students, practitioners and policy makers attending the Summer School.

Last but not least, I would like to express our great appreciation to the local co-host universities, Chulalongkorn University and Kasetsart University, for their dedicated efforts towards making this event successful.

Thank you very much.

Dr. Michinari Hamaguchi
President, Nagoya University, Japan
AC21 was established on June 24, 2002 as an international network comprised of educational, research and industrial organizations. In an era of continuous change, we believe that institutions of higher education must take the initiative in responding to the rapidly transforming needs of society, and that an international university network, with its common pool of knowledge, expertise and experience, comprises the optimum means to accomplish this.

The vision of AC21 is the promoting of cooperation in education and research between members, the bridging between different societies in the world and the delivering of wisdom to all people to mutually understand and share values, knowledge and cultures necessary to improve quality of life and to foster co-existence beyond national and regional boundaries in the 21st Century. Please visit AC21’s website at http://www.ac21.org/english/index/ for more information.

**AC21 Member Universities (as of May 1, 2013)**

- Chemnitz University of Technology (Germany)
- Chulalongkorn University (Thailand)
- Gadjah Mada University (Indonesia)
- Huazhong University of Science and Technology (China)
- Jilin University (China)
- Kasetsart University (Thailand)
- Nagoya University (Japan)
- Nanjing University (China)
- National University of Laos (Laos)
- North Carolina State University (U.S.A.)
- Northeastern University (China)
- Peking University (China)
- Shanghai Jiao Tong University (China)
- Stellenbosch University (South Africa)
- The University of Adelaide (Australia)
- The University of Freiburg (Germany)
- The University of Minnesota (U.S.A.)
- The University of Strasbourg (France)
- Tongji University (China)
The AC21 International Graduate Summer School (IGSS) took place from May 31 to June 4, 2013 at Chulalongkorn University and Kasetsart University in Bangkok; it was co-hosted by three AC21 member universities (Chulalongkorn University, Kasetsart University, and Nagoya University).

The IGSS was held with the main aims of 1) stimulating the intellectual curiosity of graduate students by offering opportunities to learn about cutting-edge academic research concerning global-scale issues in the fields of science and technology, and 2) furthering AC21’s international academic contribution by advancing the higher education of member countries, the host country Thailand, and the countries surrounding it. The IGSS is a new project, planned as an initiative to broaden the activities of AC21.

The main theme was “Green Science and Technology for a Sustainable Future,” with the two sub-themes of 1) Green Mobility and Energy and 2) Agricultural Sciences and Food Production.

With the kind cooperation of the member universities, the AC21 IGSS was able to invite top-level researchers and business leaders (including alumni) from each specialist field to participate as keynote speakers (5 persons) and lecturers (15 persons). The IGSS was lucky enough to have Nobel Prize Laureate Dr. Ryoji Noyori, who is a Distinguished Professor at Nagoya University and President of RIKEN, and Mr. Takeshi Uchiyamada, a developer of the first-generation Prius (hybrid vehicle) and the Chairman of the Board of Toyota Motor Corporation (Vice Chairman of the Board at the time of the IGSS), as keynote speakers. AC21 is delighted to have been able to offer the unique opportunity of listening to the valuable speeches and lectures of top-level researchers and business leaders. In addition to keynote speeches and lectures, other programs were also offered; student group discussions and group presentations, a factory tour of Toyota Motor Thailand, a city tour of Bangkok, a welcome reception and a dinner party.

81 students from 16 countries participated in the IGSS. These included graduate students (master’s level and above) enrolled in 15 universities from eight countries (member universities and non-member universities from Thailand’s neighboring countries), as well as international graduate students from eight Asian countries studying at Chulalongkorn University and Kasetsart University.

The IGSS promoted the increase and strengthening of networks between consortium universities, and was a project rich in hints on how AC21 can advance as a consortium in the future. For the implementation of this project, we were provided with backing from support institutions (Ministry of Education, Culture, Sports, Science and Technology – Japan (MEXT) G30 Project, UNESCO, Japan International Cooperation Agency (JICA), Japan Society for the Promotion of Science (JSPS)), donations from 14 supporting companies, and assistance from two organizations, as well as having the cooperation of keynote speakers and lecturers from various businesses. AC21 would be delighted if its future activities can further strengthen industry-academia-government collaboration.

The successful conclusion of this project and the fruitfulness of this IGSS is all due to the participating students, keynote speakers and lecturers, people affiliated with member universities and with the co-hosts, Chulalongkorn University, Kasetsart University, and Nagoya University, support institutions and support companies, and everyone who was involved and has worked so hard.
### Program

#### May 30, Thursday

Participants’ Arrival (All Day)

### Day 1: May 31, Friday   Venue: Chulalongkorn University

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<th>Time</th>
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<tr>
<td>11:00</td>
<td>Departure from Hotel</td>
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</table>
| 12:00 – 13:00 | Lunch  
Venue: In front of Auditorium, Building 4, Faculty of Engineering | 14:00 – 15:00 | Registration and Refreshment  
Venue: Room 108, Main Auditorium |
| 13:00 – 15:00 | Registration and Orientation  
Venue: Auditorium, Building 4, Faculty of Engineering |          |                                                                                           |

#### 15:20 – 17:00 Opening Ceremony (Joint Opening Ceremony with the 100th Anniversary of the Faculty of Engineering of Chulalongkorn University)   Venue: Main Auditorium

<table>
<thead>
<tr>
<th>Time</th>
<th>Program</th>
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</table>
| 15:20 – 15:25 | Welcome Address:  
Professor Pirom Kamolratanakul, M.D., President, Chulalongkorn University          |
| 15:25 – 15:30 | Welcome Address:  
Associate Professor Vudtechai Kapilakanchana, President, Kasetsart University       |
| 15:30 – 15:35 | Welcome Address:  
Dr. Michinari Hamaguchi, President, Nagoya University (AC21 General Secretariat)     |
| 15:35 – 15:40 | Greeting Address:  
Mr. Etienne Clément, Deputy Director, UNESCO Bangkok Office                           |
| 15:40 – 15:45 | Greeting Address:  
Associate Professor Dr. Boonsom Lerdhirunwong, Dean, Faculty of Engineering, Chulalongkorn University |
| 15:45 – 16:45 | Plenary Speech:  
“Science Shapes Your Future”, Dr. Ryoji Noyori, University Professor, Nagoya University, and President, RIKEN (Nobel Prize Laureate in Chemistry) |
| 16:45 – 17:00 | Token of Appreciation  
Group Photo and Transfer to the Welcome Reception Venue, Room 111, Maha Chulalongkorn Building |
### 17:30 – 20:00 Welcome Reception
Venue: Room 111, Maha Chulalongkorn Building

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<tr>
<th>Time</th>
<th>Program</th>
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<tbody>
<tr>
<td>17:30 – 17:35</td>
<td>Welcome Address: Professor Pirom Kamolratanakul, M.D., President, Chulalongkorn University</td>
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<tr>
<td>17:35 – 17:40</td>
<td>Pre-Toast Remarks: Mr. Etienne Clément, Deputy Director, UNESCO Bangkok Office</td>
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<tr>
<td>17:40 – 17:45</td>
<td>Greeting Address: Mr. Shuichi Ikeda, Chief Representative, Japan International Cooperation Agency (JICA) Thailand Office</td>
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<tr>
<td>17:45 – 20:00</td>
<td>Welcome Reception and Cultural Performances</td>
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### Day 2: June 1, Saturday
Venue: Kasetsart University <Golden Jubilee Administration and Information Center (Office of the President), Bangkhen Campus>

**Keynote Speech:** Sutharm Areekul Auditorium  
**Lecture A (Green Mobility and Energy):** Kamphol Adulavidhaya Conference Room  
**Lecture B (Agricultural Sciences and Food Production):** Thira Sutabutra Conference Room  
**Student Group Discussion I:** To be Announced at the Student Orientation  
**Refreshment:** Reception Hall  
**Lunch:** Reception Hall

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<tr>
<th>Time</th>
<th>Program</th>
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<tbody>
<tr>
<td>9:00 – 10:00</td>
<td>Keynote Speech: “Development of the Prius and Toyota’s Initiatives for Realizing Sustainable Mobility”, Mr. Takeshi Uchiyamada, Vice Chairman of the Board, TOYOTA MOTOR CORPORATION</td>
</tr>
<tr>
<td>10:00 – 10:15</td>
<td>Refreshment</td>
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</tbody>
</table>
| 10:15 – 12:15 | Lecture 1-A: Green Mobility and Energy  
>“Green Mobility with Thailand Energy Outlook”, Dr. Bundhit Eua-Arporn, Professor, Chulalongkorn University  
Lecture 1-B: Agricultural Sciences and Food Production  
>“Balancing Food and Energy Crops: Thailand Case Study”, Dr. Ed Sarobol, Associate Professor, Kasetsart University |
| 12:15 – 13:15 | Lunch                                                                                       |
| 13:30 – 15:30 | Lecture 2-A: Green Mobility and Energy  
>“How the Thai Automotive Industry is Moving Forward with Green Mobility and Energy”, Mr. Ninnart Chaithirapinyo, Vice Chairman, and “Alternative Vehicles Toward Green Mobility”, Mr. Suparat Sirisuwanangkura, Senior Vice President, Toyota Motor Thailand Co., Ltd. |
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<tr>
<th>Time</th>
<th>Program</th>
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<tr>
<td>15:40 – 15:55</td>
<td>Refreshment</td>
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<tr>
<td>16:00 – 18:00</td>
<td>Lecture 3-A: Green Mobility and Energy</td>
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<td></td>
<td>“Organic Solar Cells: State-of-the-art, Challenges and Future Perspectives”, Dr. Thomas Heiser, Professor, University of Strasbourg</td>
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<td></td>
<td>Lecture 3-B: Agricultural Sciences and Food Production</td>
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<td></td>
<td>“Corp Improvement by Ganome Design for World Food Security”, Dr. Motoyuki Ashikari, Professor, Nagoya University</td>
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<tr>
<td>18:00 – 19:00</td>
<td>Student Group Discussion I</td>
</tr>
<tr>
<td>Day 3: June 2, Sunday</td>
<td>Venue: Kasetsart University (same as Day 2)</td>
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<tr>
<td>Keynote Speech:</td>
<td>Thira Sutabutra Conference Room</td>
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<tr>
<td>Lecture A (Green Mobility and Energy): Kamphol Adulavidhaya Conference Room</td>
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<tr>
<td>Lecture B (Agricultural Sciences and Food Production): Thira Sutabutra Conference Room</td>
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<tr>
<td>Refreshment:</td>
<td>Reception Hall</td>
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<td></td>
<td>Lunch: Reception Hall</td>
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<tr>
<td>Time</td>
<td>Program</td>
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<tr>
<td>9:00 – 10:00</td>
<td>Keynote Speech: “Research in Agricultural Sciences and Food Production in Thailand”, Dr. Peeradet Tongumpai, Director, Agricultural Research Development Agency</td>
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<tr>
<td>10:00 – 10:10</td>
<td>Refreshment</td>
</tr>
<tr>
<td>10:10 – 12:10</td>
<td>Lecture 4-A: Green Mobility and Energy</td>
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<td></td>
<td>“Technology Assessment in Developing Countries: The Case of Sustainable Energy Systems in the African Context”, Dr. Alan Brent, Professor, Stellenbosch University</td>
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<td>Lecture 4-B: Agricultural Sciences and Food Production</td>
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<td></td>
<td>“Food Processes and their Analytical Control”, Dr. Eric Marchioni, Professor, University of Strasbourg</td>
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<tr>
<td>12:10 – 12:50</td>
<td>Lunch</td>
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<tr>
<td>12:50 – 14:50</td>
<td>Lecture 5-A: Green Mobility and Energy</td>
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<tr>
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<td>“Behavior Signal Processing for Vehicle Applications”, Dr. Kazuya Takeda, Professor, Nagoya University</td>
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<td>Lecture 5-B: Agricultural Sciences and Food Production</td>
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<td>“Bridging the Divide between Academia and Industry: A Plant Breeder’s Experience in the Application of Modern Biotechnology Tools”, Mr. Willem Botes, Senior Lecturer, Stellenbosch University</td>
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<td>Time</td>
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<tr>
<td>15:00 – 17:00</td>
<td>Lecture 6-A: Green Mobility and Energy “Research and Development of Biomass Energy”, Dr. Ronghou Liu, Professor, Shanghai Jiao Tong University</td>
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<td></td>
<td>Lecture 6-B: Agricultural Sciences and Food Production “Sustainable Rice Production in Indonesia: Expectation and Reality”, Dr. Andi Trisyono, Professor, University of Gadjah Mada</td>
</tr>
<tr>
<td>17:00 –</td>
<td>Optional Social Events for Students (At Students’ Own Expense)</td>
</tr>
</tbody>
</table>

**Day 4: June 3, Monday   Venue: Kasetsart University (Same as Day 2)**  
Keynote Speech: Thira Sutabutra Conference Room  
Lecture A (Green Mobility and Energy): Kamphol Adulavidhya Conference Room  
Lecture B (Agricultural Sciences and Food Production): Thira Sutabutra Conference Room  
Student Group Discussion II: To be Announced at the Student Orientation  
Lunch: Reception Hall

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<tr>
<th>Time</th>
<th>Program</th>
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<tbody>
<tr>
<td>9:00 – 10:00</td>
<td>Keynote Speech: “Releasing Hydrogen from Water using Nanoscale Materials and Sunlight”, Dr. Gregory Parsons, Alcoa Professor, North Carolina State University</td>
</tr>
<tr>
<td>10:10 – 12:10</td>
<td>Lecture 7-A: Green Mobility and Energy “LED for Lighting Energy Saving and its Packaging Technologies”, Dr. Xiaobing Luo, Professor, Huazhong University of Science and Technology</td>
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<td></td>
<td>Lecture 7-B: Agricultural Sciences and Food Production “Sustainable Solutions to Food Insecurity: Challenges and Opportunities for GM Crops in Asia &amp; Sub-Saharan Africa”, Dr. William Hutchison, Professor, University of Minnesota</td>
</tr>
<tr>
<td>12:10 – 13:00</td>
<td>Lunch</td>
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<tr>
<td>13:00 – 18:00</td>
<td>Student Group Discussion II and Preparation of Presentations</td>
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<tr>
<td><strong>18:30 – 20:30</strong></td>
<td><strong>Dinner Party   Venue: The Maruay Garden Hotel</strong></td>
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<tr>
<td>18:30 – 18:35</td>
<td>Welcome Address: Associate Professor Vudtechai Kapilakanchana, President, Kasetsart University</td>
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<tr>
<td>18:35 – 18:40</td>
<td>Welcome Address: Professor Yoshihito Watanabe, Director of AC21 General Secretariat, and Trustee (for International Affairs and Public Relations) and Vice President, Nagoya University</td>
</tr>
<tr>
<td>18:40 – 18:45</td>
<td>Greeting Address: Mr. Kuniaki Yamashita, Director, Japan Society for the Promotion of Science (JSPS) Bangkok Office</td>
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<tr>
<td>18:45 – 20:30</td>
<td>Dinner Party</td>
</tr>
</tbody>
</table>
Day 5: June 4, Tuesday  Venue: Kasetsart University (Same as Day 2)
Keynote Speech: Thira Sutabutra Conference Room
Student Presentation A (Green Mobility and Energy): Kamphol Adulavidhaya Conference Room
Student Presentation B (Agricultural Sciences and Food Production): Thira Sutabutra Conference Room

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<tr>
<th>Time</th>
<th>Program</th>
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<tbody>
<tr>
<td>8:30 – 9:30</td>
<td>Keynote Speech: “Energy Systems for Green Buildings”, Dr. Ruzhu Wang, Professor, Shanghai Jiao Tong University</td>
</tr>
<tr>
<td>9:30 – 11:20</td>
<td>Presentations by Students (Representative(s) of Each Group)</td>
</tr>
<tr>
<td><strong>11:20 – 11:25</strong></td>
<td><strong>Closing Ceremony</strong>  Venue: Thira Sutabutra Conference Room</td>
</tr>
<tr>
<td>11:20 – 11:25</td>
<td>Closing Remarks: Professor Yoshihito Watanabe, Director of AC21 General Secretariat, and Trustee (for International Affairs and Public Relations) and Vice President, Nagoya University</td>
</tr>
<tr>
<td><strong>11:25 – 12:25</strong></td>
<td><strong>Lunch</strong> (Venue: Reception Hall)</td>
</tr>
<tr>
<td>12:30 –</td>
<td><strong>Optional Factory Tour (Factory of Toyota Motor Thailand: TMT)</strong>  All participants to meet in front of the venue building &lt;Golden Jubilee Administration and Information Center (Office of the President)&gt;</td>
</tr>
</tbody>
</table>
Guests to Deliver Addresses

Etienne Clément
Deputy Director, UNESCO Bangkok

Born in 1955, Mr Clément is a Belgian lawyer specializing in international law. He was appointed in UNESCO in 1984, first in Dakar (Senegal), then at Headquarters (Paris) in 1987, where he helped to develop international standards for the protection of cultural heritage (armed conflicts, illicit trafficking, the underwater cultural heritage) and provided support to various countries for the drawing up or adaptation of their national legislation. From 1998 to 2005 Mr. Clément was Head of the UNESCO Office in Phnom Penh, where he represented UNESCO on the International Coordinating Committee for the Safeguarding and Development of the Historic Site of Angkor. In 2005, he became Deputy Director of the Bureau of Field Coordination at UNESCO Headquarters and in 2009 took his current position of Deputy Director of the UNESCO Regional Bureau for Education in Asia and the Pacific. Mr. Clément lectures at the University of Lille (France) and is author or co-author of several books and many articles, principally of a legal nature, on the protection of cultural property.

Associate Professor Boonsom Lerdhirunwong, Dr. Ing.
Dean of the Faculty of Engineering, Chulalongkorn University

In 1974, Associate Professor Boonsom Lerdhirunwong, Dr. Ing, obtained a Bachelor’s Degree in Engineering from Chulalongkorn University where he subsequently worked for a Master’s Degree (Engineering) which he obtained in 1976. In 1979, he was granted a Doctoral Degree in Engineering (Dr. Ing.) from the INSA, Toulouse, France. His training has included his attending the National Defence Programme of the National Defence College of Thailand in 2006 and the FSD 17, DCP162, ACP 41, AACP9 Programme of the Thai Institute of Directors from 2012 to 2013. Before becoming Dean of the Faculty of Engineering at Chulalongkorn University, he served as Chulalongkorn University’s Vice President for Property Management from 2004-2008, as Vice President for Student Affairs from 2006 to 2008 and on the Committee of the Chulalongkorn University Council from 2008 to 2009. He has served on the boards of various organizations including as Director of the Board and Audit Committee of the PTT (Public) Limited, Director of the Board of the Royal State Railways and Director of the Board of the Thai Red Cross Society.
Shuichi Ikeda
Chief Representative, Japan International Cooperation Agency (JICA)

Mr. Shuichi IKEDA has been assigned as the Chief Representative at the Japan International Cooperation Agency (JICA) Thailand Office since May 2013.

He obtained his Bachelor of Agriculture and Master of Environmental Science degrees from Tsukuba University, Japan. Since joining JICA in 1985, he has engaged in development and capacity building for developing countries in the field and areas such as forestry, fisheries and social development. He also contributed to disaster relief operations as Deputy Director General and recently completed his assignment in Forestry and Nature Conservation, Global Environment Department as Deputy Director General. Regarding his international experiences in JICA, he has spent more than 10 years overseas in Myanmar, Laos and the USA.

Kuniaki Yamashita
Director, Japan Society for the Promotion of Science (JSPS) Bangkok Office

Director, JSPS Bangkok Office since July 2012
Born in Takamatsu City, Japan in 1947
Graduated from Sophia University, Japan in 1971
1994-2003 Programme Specialist at UNESCO Headquarters in Paris, France (Youth & Sports Division, Division of National Commissions)
2003-2012 Professor of Kyushu University, Japan (served as Dean of Faculty of Languages and Cultures, Executive Special Advisor to the President)
Keynote Speakers and Lecturers

Ryoji Noyori
President (RIKEN) and University Professor (Nagoya)
RIKEN and Nagoya University

Short Biography:
President of RIKEN and University Professor of Nagoya University. Member of the Pontifical Academy of Sciences and the Japan Academy; Foreign Member of the National Academy of Sciences, USA, the Russian Academy of Sciences, the Royal Society, UK, and the Chinese Academy of Sciences. Born in 1938, Noyori was educated at Kyoto University. After serving as an Instructor at Kyoto University and Associate Professor at Nagoya University, he went to Harvard University as a postdoctoral associate. He was appointed Professor at Nagoya University in 1972 and assumed his current positions in 2003. He has received the Japan Academy Prize (1995), the Order of Culture (2000), and the Wolf Prize (2001). In 2001 he was awarded the Nobel Prize in Chemistry with K. Barry Sharpless and William S. Knowles.

Title keynote speech/lecture:
Science Shapes Your Future

Abstract:
Science is inevitably intertwined with society. The state of the art of chemistry, coupled with industrial endeavors, has determined our quality of life. Chemists are proud of their ability to generate high value from almost nothing by using accumulated scientific knowledge. Certainly, the sustainable development of our global society in this century requires truly practical chemical processes. Catalysis has been, and will remain, one of the most important research subjects, because it is the only rational means of producing useful compounds in an economical and environmentally benign way. We must develop catalytic systems effecting “perfect chemical reactions” that give only the desired products with 100% selectivity and 100% yield without unwanted wastes. Every reaction of multi-step synthesis should proceed with a high atom-efficiency, and the overall synthesis needs to be accomplished with a low E-factor. Researchers must spur public opinion and stimulate governmental policies for the promotion of “Green Chemistry”.

Science means different things to different individuals, groups, and sectors of society. For human society as a whole, science has a very critical value. And the technology arising out of science is essential not only for industrial and economic activity, but for the continued existence of human society.

Keywords: asymmetric catalysis; green chemistry; science for society
Takeshi Uchiyamada
Vice Chairman of the Board
Toyota Motor Corporation

Short Biography:
Takeshi Uchiyamada was born on August 17, 1946. He graduated from Nagoya University with a degree in applied physics in March 1969, and joined Toyota Motor Corporation (TMC) in April the same year. After working on sound and vibration testing, and technical administration, he became Project General Manager of Vehicle Development Center 2 in January 1994. There he led the development of the first Prius. He was named to the Board of Directors in June 1998, Managing Director in 2001, and Senior Managing Director and also Chief Officer of the Vehicle Engineering Group in 2003. In 2004 he became a Chief Officer of the Production Control and Logistics Group, and in June 2005 he was named Executive Vice President and Member of the Board and managed the Production Engineering Group. In June 2009 he became Executive Vice President of R&D field, and he was appointed Vice Chairman of the Board in June 2012.

Title keynote speech/lecture:
Development of the Prius and Toyota’s Initiatives for Realizing Sustainable Mobility

Abstract:
“Prius” is a Latin word meaning “to go before”. It has an original hybrid system, including two power sources such as gasoline engine and an electric motor, and also a planetary gear train. Sales of the Prius started in 1997 in Japan; it was the first mass-produced hybrid vehicle in the world. It caused much surprise when introduced to the market, as its fuel economy was two times better than other similar size gasoline engine vehicles. Development of this totally new vehicle was full of difficulties. The presentation will introduce how Toyota realized its development and mass-production in such a short period. It will also introduce the characteristics of Toyota’s hybrid system, and the history of system downsizing or weight reduction or cost reduction, as well as expanding hybrid models.

Hybrid technology is considered the core technology for Toyota, and its application to other environmentally friendly vehicles such as plug-in hybrid vehicles (PHV), electric vehicles (EV), or fuel cell vehicles (FCV). The presentation will also introduce the characteristic of each vehicle.

Keywords: Prius, hybrid vehicle (HV), series-parallel hybrid, 5 million units, plug-in hybrid vehicle (PHV), electric vehicle (EV), fuel cell vehicle (FCV)
Peeradet Tongumpai
Director
Agricultural Research Development Agency, Thailand

Short Biography:
Associate Professor in the Department of Horticulture, Kasetsart University. President of the Agricultural Science Society of Thailand under the Patronage of the King. Board Member of the National Research Council of Thailand (In Agriculture and Biological Science). Board Member of the Nanotechnology Research Center under the National Science and Technology Development Agency. Committee Member of the Cluster of Agriculture and Food Research, National Science and Technology Development Agency. Member of the Senate Research Committee.

Title keynote speech/lecture:
Research in Agricultural Sciences and Food Production in Thailand: From past to present and sustainable future

Abstract:
Research into agriculture in Thailand began almost one hundred years ago. One of the major achievements resulting from extensive research is rice and poultry production. New rice varieties have been continuously released for the farmers; however, new technologies for rice production are less promising, due to the fact that less research on this topic has been done. Poultry production in Thailand is now advanced, based on strong past foundations, and thus poultry has become one of the major export produce of Thailand today. Food security and safety are major concerns of our country, especially in the current situation as the world population increases drastically. Thailand and the world are moving toward an ageing society, and thus food requirements may change. The National Research Council of Thailand (NRCT) has long emphasized investment in agriculture and food research. In this fiscal year the NRCT allocated extra budget for such research, to the extent of more than half the total research budget, in a special program called the Integrated Research Program, which received additional funding from the government. The research carried out by this program may focus on rice, sugarcane, oil palm, para rubber, cassava, and food security.

Keywords: research; agriculture; food
Gregory N. Parsons  
Alcoa Professor  
North Carolina State University

Short Biography:  
Gregory N. Parsons is a Professor of Chemical and Biomolecular Engineering at North Carolina State University and a Visiting Senior Fellow at Research Triangle Institute, Research Triangle Park, NC. He received a PhD in Physics from NC State University in 1990, and did post-doctoral work at IBM TJ Watson Research Center, Yorktown Heights NY from 1990 to 1992. He joined NC State Chemical Engineering in 1992. In 2006 he launched NC State University’s Nanotechnology Initiative to address fundamental understanding of nanomaterials and nanoscale processing. Professor Parsons’ research focuses on surface chemistry and chemical processing of thin film materials by atomic and molecular layer deposition, including investigations of nanoscale surface chemistry on polymers and fibrous media, and applications in renewable energy generation and storage. He has published more than 150 research articles and received several awards for his research. He is a Fellow of the American Vacuum Society and was named in 2009 to NC State’s Academy of Outstanding Teachers.

Title keynote speech/lecture:  
Releasing Hydrogen from Water using Nanoscale Materials and Sunlight

Abstract:  
Hydrogen is highly abundant and readily available on Earth in the form of water (H₂O). In its elemental form (H₂) it can be used to produce renewable and clean liquid fuels that can help sustain our future transportation needs. However, chemically breaking water into oxygen and usable hydrogen is presently costly and energy inefficient. Many researchers are now focusing on new materials, specifically designed and engineered at the nanometer scale, that can absorb sunlight and release hydrogen and oxygen from water with high efficiency and low cost. The hydrogen can then react with waste CO₂ in the atmosphere to form renewable liquid “solar fuels”. This presentation describes the scientific and technological challenges associated with producing hydrogen from sunlight, and describes some recent advances in the field, specifically using advanced atomic-scale thin film materials reaction chemistry and technology to produce new solar absorbing materials that promote fast solar-to-chemical energy transduction.

Keywords: nanoscale materials; renewable energy; hydrogen; solar fuels
Ruzhu Wang
Professor, Director-Institute of Refrigeration and Cryogenics
Shanghai Jiao Tong University

Short Biography:
Ruzhu Wang (R. Z. Wang), born in December 1964, graduated from Shanghai Jiao Tong University in 1984 and 1987 with his bachelor and master’s degrees, respectively. He received his PhD from Shanghai Jiao Tong University in 1990 in the field of Refrigeration and Cryogenics (he was a sandwich PhD student between SJTU and Free University Berlin during April 1988 to March 1990), and was promoted to the position of associate professor in December 1992, and professor in December 1994. He has been the director of the Institute of Refrigeration and Cryogenics, Shanghai Jiao Tong University since 1993.

Prof. Wang has published more than 300 journal papers, approximately 200 being in international journals. He has written 5 books on Refrigeration Technologies. His major contributions are adsorption refrigeration, heat transfer to superfluid helium, heat pumps, CCHPs and solar energy systems. Currently he is deeply involved in green building energy systems. Prof. Wang was elected one of the top one hundred outstanding professors in Chinese Universities by the MOE of China in 2007. He was awarded model teacher of China in 2009.

Prof. Wang was appointed deputy Editor-in-Chief for the international journal Energy, and Associate editor of Solar Energy. In the last ten years, he has been invited to give plenary lectures at international conferences on over 10 occasions.

Title keynote speech/lecture:
Energy Systems for Green Buildings

Abstract:
A green building needs good energy systems which supply heating, cooling, hot water and even electricity, etc. to the indoor space. Low energy consumption, environmental friendly functions and a comfortable indoor environment are key factors for a green building. Various energy systems such as a solar-heated hot water supply, BIPV for the electricity supply, solar heating, solar cooling, various heat pumps, CCHPs, novel HVAC indoor terminals integrated in the building, and even smart grids have been shown to be effective energy systems for green buildings. Based on detailed research and demonstration projects, a new green building with various high efficiency energy systems has been constructed at the SJTU. These energy systems have been tested and evaluated for long-term operation.

The working principals, demonstration practices and research results will be presented in this lecture; this may help listeners to understand clearly how the green building energy systems were designed and operated.

Keywords: green building; solar energy; heat pump; CCHP; smart grid
Bundhit Eua-arporn
Director, Energy Research Institute
Chulalongkorn University

Short Biography:
Prof. Bundhit Eua-arporn is the director of the ERI. His interests cover power systems operation and planning, energy policy and modeling. The first area involves optimal short-term power system operation and long-term power system planning, particularly with the application of probabilistic-based methods, whereas the latter focuses on energy policy development based on energy system modeling and simulation results. His recent research works include Thailand Energy Outlook, and Thailand Energy Master Plan Development. He is also a faculty member of the faculty of engineering, Chulalongkorn University.

Title keynote speech/lecture:
Green Mobility with Thailand Energy Outlook

Abstract:
The urbanization of society helps create more convenient communication and transportation for the general public. It is widely known that the transportation sector consumes a huge amount of fossil fuels, especially petroleum products, which causes greenhouse gas emission. With more stringent environmental concerns, it is anticipated that green mobility or green transportation, which relies on indigenous renewable energy resources in replacing fossil-based petroleum products, will have an increasing role in reducing the GHG emission and oil import dependency of our country.

Thailand Energy Outlook, under a reference scenario which illustrates the anticipation of Thailand’s energy demand and supply up to the year 2035, will first be introduced. Then, results from the green mobility scenario which takes into account different levels of utilization of bio-fuel and electricity in the transportation sector will be presented and compared. The impact on Thailand’s primary energy supply, energy import dependency, and greenhouse gas emission from the transportation sector will then be analyzed. The results will demonstrate the essence and potential of Thailand’s renewable energy utilization in the transportation sector.

Keywords: green mobility; transportation sector; energy outlook; greenhouse gas emission; renewable energy
Ninnart Chaithirapinyo  
Vice Chairman  
TOYOTA MOTOR THAILAND  

Short Biography:  
Mr. Ninnart Chaithirapinyo began his career as a quality control and production engineer with Toyota Motor Thailand after his graduation in Mechanical Engineering from Chulalongkorn University in 1971. He was a co-designer of machines in the Assembly, Welding and Painting Shop of Toyota’s factory from 1975; and was then, in 1992, promoted to become the first ever Thai Director of the Board. Moreover, he participated as co-chief engineer in designing the first generation Toyota Soluna - the present Vios. He is also one of the main private supporters of the introduction of unleaded gasoline in Thailand, including support for many research projects concerning alternative fuels such as gasohol E-10, E-20, CNG, B5, Bio-Diesel and Biohydrogenated Diesel (BHD). He was also on a committee for drafting industrial standards for exhaust pipes, glass, and safety belts for the Thai Industrial Standard Institute (TISI). He is currently a board member of the Engineering Institute of Thailand, President of the Thai Green Building Institute, Chairman and Founder of the Intelligent Traffic Information Center Foundation and Honorary President of the Thai Automotive Industry Association.  

Title keynote speech/lecture:  
How the Thai Automotive Industry is Moving Forward with Green Mobility and Energy  

Abstract:  
Recently there has been a sharper focus on the technologies and industries we support with our habits and lifestyle changes. However, the impact they have is not only on us but also on the environment at large. The rapid population growth and our high rates of resource consumption, particularly energy, have been the main drivers of increases in carbon dioxide in the atmosphere, resulting in global warming and climate change. We should recognize that it is our responsibility to take the lead in dealing with major aspects of global environmental issues. Toyota, as a leader in the automotive industry, has also been focusing on this vital agenda. We have continuously strived to contribute to the sustainable development of society through the manufacturing and provision of innovative and quality products and services at the forefront of our times. We aim for growth in harmony with the environment by seeking to minimize the environmental impact of our business operations in all aspects, including materials selection, assembly, production, product delivery, product quality, sales, and after-sales service, in order to ensure our continuous development to become the engine driving the cycles of industry in harmony with the cycles of nature.  

Keywords: green mobility; energy; Thai automotive industry
Suparat Sirisuwanangkura  
Senior Vice President  
Toyota Motor Thailand Co., Ltd.  

Short Biography:  
Mr. Suparat Sirisuwanangkura was born in 1953. Following his graduation in Engineering (Mechanical Engineering) at Kasetsart University in 1976, he began his career as a quality control and technical planning engineer with Toyota Motor Thailand. In 1998 he was promoted to Associated Director, and the following year to a Director position. He participated as a co-chief engineer of the prototype Corolla Altis, and in campaign designing for many models, especially the Thai language Soluna logo. He also encouraged the company’s policy of using 100% local parts. Currently, he is a Senior Vice President of Toyota Motor Thailand Co., Ltd. and is responsible for the External Affairs Division, which is connected with government policies such as Excise Tax, JTEPA, the ECO car project, the First car project, etc. He is also an Executive Managing Coordinator of the Technical External Affairs Division at Toyota Motor Asia Pacific Engineering & Manufacturing Co., Ltd., and is responsible for many research projects concerning alternative fuels such as Jatropha, BHD, Palm Trunk, Gasohol E-10, E-20, E-85, CNG and B5. He also serves as a Vice Chairman of the Federation of Thai Industries (FTI) and Chairman of the Automotive Industry Club (AIC) of the Federation of Thai Industries, and as Honorary President of the Thai Automotive Industry Association.

Title keynote speech/lecture:  
Alternative Vehicles Toward Green Mobility

Abstract:  
The automotive industry continues to grow rapidly. In terms of environmental concerns, automobiles are a source of considerable pollution, including Carbon Dioxide (CO2) emissions, greenhouse gas and global warming. In terms of economic concerns, automobiles are fueled by petrol, which is produced from crude oil. However, crude oil is blended from fossil fuel, which is not renewable and is limited in supply, and which will one day be depleted; meanwhile, its price is rising. Therefore, to lessen the impact of motor vehicles and protect the environment, alternative fuels are being researched as options to address these problems. The alternative fuels are biofuels, which are now available as ethanol (E20, E85), biodiesel (B5) and CNG. Nowadays, people are paying more attention to the technical development of biofuel production. The raw materials needed to produce biofuels are derived from agricultural products. Ethanol is produced from sugar cane, cassava, and corn, and biodiesel from palm oil, soy beans, etc. Potential alternative energy for the future is advanced technology, which includes electric sourced vehicles such as hybrid vehicles (HV), plug-in HVs, electric vehicles (EV), and fuel cell HVs (FCHV). These advanced vehicles are not ready for use today due to a need for further studies on cost, durability of batteries and national infrastructure.
In the future, we hope to see efficient new technology being used to save our world and leave a better society for our children.

Keywords:  green mobility; energy; Thai automotive industry; alternative fuel and advanced technology
Short Biography:

Professional Experience

1988: PhD in Semiconductor Physics, University of Strasbourg, France
1989-2000: Assistant Professor, University of Strasbourg, France
1995-1997: Visiting Research Fellow, University of California, Berkeley
since 2000: Full Professor at the University of Strasbourg.

Head of the Organic Electronics Team, ICUBE Laboratory, icube.unistra.fr

Current research topics:


Title keynote speech/lecture:


Abstract:

This lecture will be devoted to the recent development of photovoltaic thin film devices, which use molecular materials (polymers or molecular semiconductors) as light absorbing and electrical current generating layers. The power conversion efficiency of these “organic” solar cells has been continuously increasing over the last ten years, reaching values above 10%. The rapid and ongoing progress of this new technology should make flexible, lightweight and roll-to-roll processed low-cost photovoltaic modules within reach in the near future. After a short overview of the current status in photovoltaic solar energy production, the lecture will focus on the organic technology. The physics of an organic solar cell as well as the related scientific and technological challenges will be described in detail. Different routes that are currently being explored by material scientists and device engineers to further improve the solar cell performance and stability will be presented. Perspectives in terms of achievable power conversion efficiency, estimated energy feedback time, and possible market applications will be given.

Keywords: photovoltaics; organic solar cells; organic electronics
Alan Brent
Professor and Associate Director
Centre for Renewable and Sustainable Energy Studies, Stellenbosch University

Short Biography:
Alan Brent holds bachelor degrees in engineering (chemical) and philosophy (sustainable development); master degrees in science (environmental engineering), engineering (technology management), and philosophy (sustainable development); and a PhD in engineering management. Since 1995 he has acted as consultant to a variety of industry and public sectors in South Africa and other developing countries in the fields of environmental engineering and management; his research focus now revolves around sustainable technology management. He is a professor at Stellenbosch University in the Sustainable Development programme of the School of Public Leadership (SPL) of the Faculty of Economic and Management Sciences, and is also the associate director of the Centre for Renewable and Sustainable Energy Studies (CRSES), which is based in the Faculty of Engineering. He is also a part-time professor of Sustainable Life Cycle Management in the Graduate School of Technology Management (GSTM) at the University of Pretoria.

Title keynote speech/lecture:
The case of sustainable energy systems in the African context

Abstract:
Technology assessment is an important component for effective technology management, and occurs in initial technology life-cycle phases. However, technology assessment practices have largely evolved in developed countries. Current technology assessment methods also do not consider social-ecological complexity, which is important if the sustainability of technologies is to be assessed; this is especially true of energy systems in developing countries. This paper subsequently investigates how the understanding of the principles of sustainability science may lead to better assessment practices that can be used upfront, in the technology management cycle, by policy- and decision-makers. Renewable energy technologies in the African context are used as the basis for the investigation.

Keywords: sustainable development; sustainability; technology assessment; technology management; developing countries
Kazuya Takeda
Professor
Nagoya University

Short Biography:
Kazuya Takeda received his B.E., M.E. in Electrical Engineering and Doctor of Engineering degrees from Nagoya University, Nagoya, Japan, in 1983, 1985, and 1994, respectively. From 1986 to 1989 he was with the Advanced Telecommunication Research laboratories, Japan; his main research interest at ATR was corpus-based speech synthesis. From 1989 to 1995 he worked at KDD Laboratories, Japan, where he led a research project on a voice-activated telephone extension system. From 1995 to 2003 he was an associate professor of the School of Engineering at Nagoya University, where he started a project to collect human behavior signals while driving, and to apply signal processing technologies for understanding those signals. Since 2003 he has been a professor at the Department of Media Science, Graduate School of Information Science, Nagoya University. His current research interests are media signal processing, including spatial audio, robust speech recognition and human behavior modeling.

Title keynote speech/lecture:
Behavior Signal Processing for Vehicular Applications

Abstract:
Within the past decade, analyzing and modeling human behavior by processing large amounts of collected data has become an active research field in the area of human-machine interaction. The research community is striving to find principled ways to explain and represent important behavioral characteristics of humans, with the goal of developing more efficient and more effective cooperative interactions between humans, machines, and environment. This lecture provides a summary of the progress we have achieved to date in our study, which has focused specifically on interactions between driver, vehicle, and driving environment. First, we will describe the method of data collection used to develop our on-the-road driving data corpus. The lecture will then provide an overview of the data-driven, signal processing approaches we used to analyze and model driver behavior for a wide range of practical vehicle applications. Next, we will perform experimental validation by observing the actual driving behavior of groups of real drivers. In particular, the vehicle applications of our research include driver identification, behavior prediction related to car following and lane changing, detection of emotional frustration, and improving driving safety through driver coaching. I hope this lecture will provide some insight to audience with an interest in this field, and help identify areas and applications where further research is needed.

Keywords: traffic safety; big data; signal processing; driving behavior
Ronghou Liu
Professor & PhD Supervisor, Director
Biomass Energy Engineering Research Centre, School of Agriculture and Biology, Shanghai Jiao Tong University, P.R. China

Short Biography:
Ronghou Liu, PhD is a professor at the Department of Resource and Environment, School of Agriculture and Biology, Shanghai Jiao Tong University, P.R. China. He has been involved in teaching, research and training work in the field of renewable energy science 1984. At present, he is executive member of the Chinese Renewable Energy Society; he is also an editorial board member of five EI journals, such as the International Journal of Global Energy Issues, Transactions of the CSAE, etc. He studied at JICA Tsukuba International Centre, Japan in 1995. He worked at the Department of Thermal Science and Energy Engineering at the University of Science and Technology of China from 1997-1999 as a post-doctoral researcher. From 2000-2001 he did research at the Bio-energy Research Group of Aston University, UK. He also did research at Cornell University, USA as an invited professor for 20 months from 2009-2012. Professor Liu has had a great deal of experience in conducting national and international research projects in the field of biomass energy. He has published 7 books as an editor-in-chief and more than 60 papers in SCI and EI journals. His main research field is Biomass Energy Engineering, including biomass pyrolysis, bioethanol, biogas, etc.

Title keynote speech/lecture:
Research and Development of Biomass Energy

Abstract:
Biomass energy will play an important role in energy systems. This lecture will describe biomass conversion technologies, including direct combustion, thermal chemical conversion technology, and biological conversion technology. In addition, biomass pyrolysis for bio-oil production technology including rotating cone reactors, fluidized bed reactors, and properties of bio-oil will be introduced. A case study of biomass gasification technology will also be presented, as well as bio-ethanol from sweet sorghum, and biogas-greenhouse ecosystem technologies.

Keywords: biomass energy; pyrolysis; bio-oil; ethanol; biogas
Xiaobing Luo
Professor, Associate Dean
Huazhong University of Science and Technology

Short Biography:
Xiaobing Luo received his PhD degree in 2002 from Tsinghua University, Beijing, China. From 2002 to 2005 he was with Samsung Electronics, Seoul, Korea, as a Senior Engineer. In 2005 he returned to China and became an Associate Professor at Huazhong University of Science and Technology, Wuhan, and in 2007 he became a Full Professor after exceptional promotion. Since 2011 he has been Associate Dean of the School of Energy and Power Engineering, Huazhong University of Science and Technology, Wuhan. He is also a Professor with the Wuhan National Laboratory for Optoelectronics, Wuhan. He has published more than 100 journal and conference papers as the first author or corresponding author and been granted more than 20 patents in the USA and China. He has also coauthored one English book about LED packaging design through John Wiley Press. He is an IEEE senior member and associate Editor of IEEE Transactions on Components, packaging and manufacturing. He is also a member of the editorial board of Frontiers in Energy and guest editor of Frontiers of Optoelectronics. His current research interests include LED/IC packaging and thermal management, and microfluidics devices.

Title keynote speech/lecture:
LED for Lighting Energy Saving and its Packaging Technologies

Abstract:
Due to advantages over traditional light sources in terms of efficiency, lifetime, chromatic performance, reliability and environmental protection, white light-emitting diodes (LEDs) have widely penetrated into many illumination applications, such as large size flat backlighting, street lighting, vehicle forward lamp, museum illumination and residential illumination. In this lecture, we will introduce the basic principles of LEDs, LED application, and LED basic technologies. In these technologies, we will focus on LED packaging and application. This includes thermal management, optical design and process designs. Active and passive cooling, freeform lens design, and phosphor coating based on microfluidics will be presented in detail.

Keywords: LED; packaging; energy saving; thermal management; phosphor coating
Ed Sarobol
Chairman, Tropical Agriculture International Program (BS Degree)
Agronomy Department, Faculty of Agriculture, Kasetsart University

Short Biography:
Dr. Sarobol received his BS (1974) and MS (1978) degrees in Agriculture from Kasetsart University (KU) Bangkok, Thailand, and his PhD in Crop Production and Physiology from Iowa State University, USA, in 1986. Currently he is Associate Professor of Agronomy at the Faculty of Agriculture, KU, Bangkok. His research area is focused on agronomic and physiological research for increasing crop yield, and stress alleviation through agronomic practices in corn, cassava and oil palm.

Title keynote speech/lecture:
Balancing Food and Energy Crops: Thailand Case Study

Abstract:
Feeding the ten billion people living in the 21st century is the prime concern of all nations on earth. Simultaneously, the demand for energy is increasing due to economic development, while fossil fuel is likely to run out in less than 50 years. Scientists are seeking alternative sources of energy to replace the fossil fuel. One of the promising sources is bio-based energy such as gasohol and biodiesel. Problems arise, however, when food and fuel share the same feedstock. Balancing the dual roles of crop plants is not an easy task. Priority must be given to fulfill the food demand, while energy requirements must also be adjusted among the alternative sources. Crop zoning, sustainable land use management, crop loss reduction and rules and regulations should be implemented. This paper focuses the discussion on Thailand’s experience attempting to balance the nation’s demand for both food and energy.

Keywords: food and energy crops; crop zoning; balance
Danfeng Huang
Professor, Dept. of Plant Science, School of Agro-Biology
Shanghai Jiao Tong University

Short Biography:
Prof. Huang received her PhD degree from the Southwest Agricultural University in China in 1992. She worked as a visiting professor at Wageningen University in the Netherlands from 2005 to 2006, and was selected to be vice-director at the School of Agro-Biology of Shanghai Jiao Tong University from 2001 to 2008. At present, she is a professor and group leader of horticulture in the Agriculture and Biology School of Shanghai Jiao Tong University. She has been researching physiology and ecology, and the nutritional physiology of horticultural crops, mainly focusing on melon and green leafy vegetables, to optimize the environment for the growth of horticultural plants with energy and nutrition conservation as well as higher production efficiency. She has made achievements in K⁺ plant uptake under salinity stress, nitrogen dynamics in organic farming systems and nutritional physiology in melon growth and development, etc. She has engaged in agricultural higher education and research for 30 years and made remarkable achievements in both teaching and research work.

Title keynote speech/lecture:
Nitrogen Dynamics in Horticultural Crop Organic Farming Systems

Abstract:
Organic farming is developing fast due to its benefit for the environment. This lecture introduces students to organic farming that has taken place all over the world in recent years. The advantages and some of the issues, as well as the roles and regulations of organic farming between western contraries and in China, will be analyzed in the lecture as well.

Nitrogen is a particularly important element for the basis of ecological and agricultural development. It depends on the availability of soil and groundwater. Some cutting-edge research of plant uptake of organic nitrogen in organic vs. conventional farming systems will be discussed in the lecture. There is some evidence that horticultural crops such as tomatoes, melon, spinach and pakchoi can take up much more organic nitrogen as a nutrient in organic farming systems than those in conventional systems. Is there competition between plants and microorganisms over the use of the organic nitrogen in soil? The mechanisms of organic nitrogen uptake, enzyme activities of nitrogen cycles, nitrogen input and output in soils both in organic and conventional farming systems will be discussed in the lecture.

Keywords: organic farming; conventional; horticultural crops; nitrogen composition; amino acids uptake
Motoyuki Ashikari
Professor
Nagoya University

Short Biography:
1999 Agriculture Department of Kyushu University Awarded the degree of Ph.D. in Agriculture
1997-1999 Research Fellow, Japan Society for the Promotion of Science (National Institute of Agrobiological Resources)
2000-2003 Assistant professor, BioScience Center, Nagoya University
2004-2007 Associate professor, BioScience & Biotechnology Center, Nagoya University
2007 August~ Full professor, BioScience & Biotechnology Center, Nagoya University

Awards
ISPBM (The International Society for Plant Molecular Biology) Student Travel Award, 1999
Young Scientist Award from Japan Breeding Society 2004
Nihon Nougaku Shippo Award 2006
JSPS (Japan Society for the promotion of Science) PRIZE 2008
AAAS Science Fellow 2012

Title keynote speech/lecture:
Application of Plant Molecular Biology for World Food Security

Abstract:
Food shortage is one of this century’s most serious global problems. 25,000 people die every day due to lack of food; this number includes 14,000 children under 5 years old. The FAO estimates that 925 million people worldwide were undernourished in 2010. It is estimated that the world population will be over 90 billion in 2050, and food shortages will thus become more severe in the near future.

Cereals are an important source of calories for humans, both through direct intake and as the main feed for livestock. Approximately 50% of the calories consumed by the world population originate from three cereals: rice (23%), wheat (17%), and maize (10%). To meet the expanding food demands of the rapidly growing world population, crop grain production will need to have increased by 50% by 2025. Action for increasing crop production is therefore required. I launched the “WISH Project”, a world breeding endeavor involving the pyramiding of genes responsible for important agronomic traits in rice, for poor people all over the world. In this presentation I will show how the application of plant molecular biology can meet the challenge of world food security.

Keywords: food problems; crops; rice; breeding; molecular biology
Eric Marchioni
Professor
Université de Strasbourg

Short Biography:
Eric Marchioni (53 years old), Professor in Analytical Chemistry at the University of Strasbourg (France), specializes in food analysis, detection and quantification of new bioactives in food (anti-oxidants, vitamins, complex lipids, etc.). He has written more than 100 international publications and managed 30 national French and 7 international research contracts. 11 PhDs have been defended under his supervision. The major applications of his research are: food quality and traceability, process control, health, and food security and toxicology.

Title keynote speech/lecture:
Food Processes and their Analytical Control.

Abstract:
In a global reflection supported by scientific centers of the food industry, the issues focus on the construction of food in its entirety, from farm to mouth. This involves the steps of extraction, fractionation, purification of agricultural raw materials and formulation, processing, preservation, and finally domestic processing before consumption. This lecture will concern the post-agricultural production of food that highlights the importance of food chemistry, something that appears to be largely underestimated in relevant literature. If one wishes to bring a sharp focus to nutritional issues, it is necessary to have a good knowledge of the chemical properties of food, the presence, absence or threshold effects of a compound, speciation and molecules, their chelation, the protective, inhibitory or potentiator effect of the matrix, the role of the stereochemistry of molecules, etc. Similarly, the occurrence of (supposed) chemical contaminants, observed and quantified thanks to the increased resolution and sensitivity of analytical techniques, has shown an ignorance of the mechanisms of food chemical construction. These chemical contaminants, endogenous when considering agriculture, or exogenous, newly formed, when considering processes and food preservation technologies, are recognized as essential and must be studied and understood.

Keywords: food; process; analytical chemistry
Willem C. Botes
Senior lecturer and Plant breeding lead
Stellenbosch University

Short Biography:
Willem Botes is senior lecturer at the Department of Genetics, Stellenbosch University, and project lead for small grain breeding programs. Under his guidance the breeding programs successfully obtained plant breeder’s rights, licensed several cultivars, including triticale and rye, and released several wheat rust resistance nurseries to both public and private breeding programs in South Africa. Willem is a former president of the Southern African Plant Breeders Association, and serves on several advisory committees related to plant breeding in South Africa.

Title keynote speech/lecture:
Bridging the Divide Between Academia and Industry: A plant breeder’s experience in the application of modern biotechnology tools

Abstract:
The wheat production areas of South Africa are plagued with the presence of several different wheat diseases. Among them the three rusts, namely stem rust, leaf rust and stripe rust, are the most prominent, with estimated losses of up to 40% having been reported in some seasons due to severe leaf rust epidemics, and losses caused by stem rust and stripe rust as high as 100%.

Wheat rust can be effectively controlled by the deployment of resistance genes that confer either partial or complete resistance. The utility and durability of resistance genes can be extended considerably if multiple genes are combined in new varieties, thus creating more complex and formidable genetic barriers that are less likely to be overcome by pathogen mutation.

One of the most effective ways of achieving the introduction of existing and/or novel resistance genes into breeding programs is by a structured process of pre-breeding based on biotechnology tools such as molecular marker assisted selection and the production of doubled haploids, for instance. The material stemming from such a pre-breeding program (usually performed in the public domain) can then be introduced into (private/commercial) breeding programs as crossing parents/gene donors, thereby enabling breeding programs to achieve quicker, better results.

An industry-funded pre-breeding effort is currently being conducted at Stellenbosch University’s Plant Breeding Laboratory (SU-PBL), and the germplasm developed is being distributed annually as a collection of nursery lines from which breeders can select suitable crossing parents. During 2013 the 8th SU-PBL nursery will be released to all three wheat-breeding programs in South Africa.

The pre-breeding effort utilizes a SU-PBL-developed wheat breeding protocol based on male sterility mediated marker assisted recurrent selection (MS-MARS), and utilizes a base population derived from local germplasm, and resistance genes that are commonly used by commercial breeding programs in South Africa, as well as novel specie derived resistance genes.

Keywords: MS-MARS; doubled haploid; marker assisted selection; wheat
Y. Andi Trisyono
Professor of Entomology
Department of Crop Protection
Faculty of Agriculture, University of Gadjah Mada

Short Biography:
I have been a faculty member in the Department of Crop Protection, Faculty of Agriculture, University of Gadjah Masa since 1987. I earned my Master Degree in 1994 from Michigan State University, USA, and my Ph.D. Degree from the University of Missouri, USA in 1999, both in Entomology. My research interests are the toxicology of insecticides, emphasizing insect growth regulators and other biorational approaches (including transgenic crops) to control pest insects, and environmental risk assessment of crop protection technologies. I was the chairperson of the Department of Crop Protection for two terms from 2003 to 2011, and vice chairperson for the Crop Protection Committee at the national level from 2008 onwards. Since 2007, I have been the president of the Entomological Society of Indonesia for a second term.

Title keynote speech/lecture:
Sustainable Rice Production in Indonesia: Expectation and reality

Abstract:
The population of Indonesia has doubled during the last 40 years, reaching 237.6 million in 2010. This increase averaged 2.48% per year. Continuous increase in the population forces the government and society to keep up rice production, since rice is a staple food for Indonesians. There have been a number of national programs implemented to increase rice production. Despite some of the environmental issues, the green revolution era changed the way the rice production system was practiced, and it marked a high increase in yield. Since then, a more environmentally friendly approach was launched nationally during the early 1990’s. A national program in Integrated Pest Management (IPM) was introduced to combat rice pest outbreaks and to reduce the use of pesticides. Because of the economical, political, and social status of rice, its price has been regulated and under government control. To maintain a sufficient rice supply, the government of Indonesia has run three major long-term programs, namely, food diversification, rice intensification, and extensification. Rice consumption has dropped, averaging 1.15% per year since 1999. Furthermore, the rice harvested area (ha) and productivity (ton/ha) have increased by 2.04% and 1.54% annually over the last seven years. These have contributed in an addition of 3.80% in rice production per year at the national level. These promising figures do not exempt Indonesia from the occasional importation of rice, for reasons of food security and unexpected yield losses due to natural disasters. Rice will continue to be the staple food; therefore, implementation of sustainable rice production systems must be continued to attain high production while maintaining the ecological services provided by the rice agroecosystems.

Keywords: Indonesia; rice; sustainability
William (Bill) D. Hutchison  
Professor & Head, Dept. of Entomology  
University of Minnesota, St. Paul, Minnesota

Short Biography:  
Bill has been a Professor and Extension Entomologist in the department since 1989, and previously worked for the USDA-ARS on cotton pest management. He received his B.S. in Agronomy (1977) at the University of Arizona, and a Ph.D. in Entomology (1984) from the University of Wisconsin. Bill is active in developing multi-faceted Integrated Pest Management (IPM) programs for vegetable crops, field crops, grapes and small fruits; his primary focus is understanding insect population dynamics and the use of pest-resistant varieties. He is also active with research on the biosafety and resistance management of GM maize. Within the Entomological Society of America (ESA), Bill served as President of the Plant-Insect Ecosystems (P-IE) Section (2009). He has also served as an Editor for the Journal of Economic Entomology, and currently serves on the Editorial Boards of GM Crops & Food, and Crop Protection.

Title keynote speech/lecture:  
Sustainable Solutions to Food Insecurity: Challenges and Opportunities for GM Crops in Asia & Sub-Saharan Africa

Abstract:  
An estimated 800 million people in Asia and SSA continue to suffer from malnutrition. With recent population growth in SSA, as well as prolonged droughts, erratic rainfall and pest outbreaks, consistent food production is particularly challenging for resource-poor farmers. The need for increased food production, and in many countries on less land, has created demand for a blend of new and appropriate technologies. Genetically modified (GM) crops, including insect resistant crops such as GM maize, the use of hybrid maize varieties, and new grain storage systems, are a few examples of technologies that have the potential to transform current subsistence production to surplus grain scenarios. With increased maize yields, families have opportunities to market or trade excess grain to enhance their health and educational opportunities for their children. Hybrid and GM maize are two examples where significant gains can be made in doubling or tripling yields, via genetic improvement, reduced stem borer damage, and reduced fusarium diseases (mycotoxins). GM maize for stem borer control has been shown to be compatible with a sustainable Integrated Pest Management (IPM) approach, via conservation of beneficial insects, promoting less pesticide use and economic benefits. However, societal, micro-finance and regulatory systems must be in place to support the availability of improved hybrid and GM seed varieties.

Keywords: sustainability; GM crops; GM maize; area-wide pest suppression; IPM
A Week in Review

Thursday, May 30, 2013

Participating students from overseas and in Thailand arrived at the Maruay Garden Hotel. Keynote speakers and lecturers, who were either from AC21 member universities or their alumni, arrived at Pathumwan Princess Hotel.

81 students from 16 countries participated in the IGSS. These included graduate students (master’s level and above) enrolled in 15 universities from eight countries (member universities and non-member universities from Thailand’s neighboring countries), as well as international graduate students from eight Asian countries studying at Chulalongkorn University and Kasetsart University.

Friday, May 31, 2013

All the participating students were picked up at the Maruay Garden Hotel at 11:00 am and taken by bus to Chulalongkorn University, the venue for Day 1. Before the orientation, students were placed in groups of four to six people with whom they were to do group work until the final day (a total of 14 groups, seven groups each for sub-theme A and B) and had lunch with the members of their newly-formed group. After lunch, the student orientation was held. First, Assistant Professor Kriengkrai Boonlert-U-Thai, Assistant to the President, Chulalongkorn University gave welcome remarks. Next, Associate Professor and AC21 Project Coordinator Ayako Ido of the AC21 General Secretariat, Nagoya University gave an overview of AC21 and the AC21 International Graduate Summer School (IGSS). Assistant Professor Nuttakan Nitayapat, Assistant to the President, Kasetsart University explained the activities of IGSS in detail.

The students then had the precious opportunity to learn about some of the companies sponsoring the IGSS. Four companies (Makita Corporation, Mitsubishi Motors Corporation, Thai Denso Group and Toyota Tsusho Corporation) gave company introductions as part of their recruitment activities.

At the opening ceremony that followed, the presidents of the three host universities (Professor Pirom Kamolratanakul of Chulalongkorn University, Associate Professor Vedtechai Kapilakanchana of Kasetsart University, and Dr. Michinari Hamaguchi of Nagoya University) each began by giving a short welcome speech; Mr. Etienne Clément, Deputy Director at the UNESCO Bangkok Office, and Associate Professor Boonsom Lerdhirunwong, Dean of the Chulalongkorn University’s Faculty of Engineering, then said a few words. After this, Nobel Prize Laureate Dr. Ryoji Noyori gave a special lecture titled “Science Shapes Your Future.” This event also marked the 100th Anniversary of Chulalongkorn University’s Faculty of Engineering, and was attended by around 500 people.

A welcome reception followed the opening ceremony; after welcome remarks by President Kamolratanakul of Chulalongkorn University, Deputy Director Clément of the UNESCO Bangkok Office and Mr. Shuichi Ikeda, Chief Representative of the Japan International Cooperation Agency (JICA) Thailand Office, gave their addresses. Next, the students, keynote speakers
and lecturers from all the participating countries as well as the members of support institutions and co-host universities had the chance to meet one another and chat, while enjoying Thai traditional performances and Thai music.

**Saturday, June 1, 2013**

From the second day, speeches and lectures were carried out by the keynote speakers and lecturers, focusing on cutting-edge academic research surrounding global-scale issues such as energy technologies, food production, and global warming. Keynote speakers and lecturers, who are top-level researchers and business leaders, were invited from AC21 member universities and their alumni.

On Day 2, one keynote speech and six lectures were delivered. The keynote speech was given by Mr. Takeshi Uchiyamada, Chairman of the Board of Toyota Motor Corporation (Vice Chairman of the Board at the time of the IGSS). The lectures addressed either of the two sub-themes of the IGSS: “Green Mobility and Energy” and “Agricultural Sciences and Food Production.” Lecturers for sub-theme A were Professor Bundhit Eua-Arporn (Chulalongkorn University), Mr. Ninnart Chaithirapinyo (Vice Chairman of Toyota Motor Thailand Co., Ltd.), Mr. Suparat Sirisuwanangkura (Senior Vice President of Toyota Motor Thailand Co., Ltd.), and Professor Thomas Heiser (University of Strasbourg). Lecturers for sub-theme B were Associate Professor Ed Sarobol (Kasetsart University), Professor Danfeng Huang (Shanghai Jiao Tong University), and Professor Motoyuki Ashikari (Nagoya University). Abstracts of their speeches and lectures are included in this final project report. The participating students actively asked questions and gave their opinions, leading to lively debate.

As the final event of the day, the participating students held the Group Discussion I session, in order to give group presentations on the final day about what they had learned from the keynote speeches and lectures they had heard, which global-scale issues they thought were most important, and possible solution strategies.

**Sunday, June 2, 2013**

On Day 3, one keynote speech and six lectures were delivered. The keynote speech was delivered by Dr. Peeradet Tongumpai, Director of Agricultural Research Development Agency. Lecturers for sub-theme A were Professor Alan Brent (Stellenbosch University), Professor Kazuya Takeda (Nagoya University) and Professor Ronghou Liu (Shanghai Jiao Tong University).
One keynote speech and two lectures were delivered. The keynote speech was delivered by Professor Gregory Parsons (North Carolina State University). The final lectures were given by Professor Xiaobing Luo (Huazhong University of Science and Technology) for sub-theme A and by Professor William Hutchison (University of Minnesota) for sub-theme B.

In the afternoon, students held Group Discussion II session and prepared for the group presentation on the final day. After the day’s program was over, a dinner party was held. After greetings from Professor Siree Chaiseri, Vice President of Kasetsart University, Mr. Kuniaki Yamashita, Director of the Japan Society for the Promotion of Science (JSPS) Bangkok Office, and Professor Yoshihito Watanabe, Trustee and Vice President of Nagoya University and Director of the AC21 General Secretariat, who represented the AC21 General Secretariat, we enjoyed traditional Thai dance and music, held a photo session, and spent a very happy evening.
Tuesday, June 4, 2013

After a final keynote speech by Professor Ruzhu Wang (Shanghai Jiao Tong University), the students gave presentations. Their presentations were very impressive, demonstrating how much they had learned from the keynote speeches and lectures they had heard at the IGSS, and proposing innovative ideas for solution strategies for green science and technology for a sustainable future.

The closing ceremony concluded the whole program of the AC21 IGSS. Closing remarks were given by Professor Yoshihito Watanabe, Director of the AC21 General Secretariat. He congratulated the students on their successful completion of the IGSS.

After the closing ceremony, thanks to the generous cooperation of Toyota Motor Thailand Co., Ltd., students had a chance to visit its Banpho plant, Toyota’s environmental model factory in Asia, which is moving towards sustainability by using innovative and environmentally-friendly technology in every production process of Toyota’s vehicles. Students were impressed with the company’s efforts for environmentally friendly technology.

After the factory tour of Toyota Motor Thailand, participating students headed back to their home countries.
Results of Questionnaire Survey

Participant satisfaction survey was answered by all 81 students participating in the AC21 International Graduate Summer School (IGSS) at the end of the event. Thanks to the many people who contributed to the IGSS, this new AC21 project received a lot of positive feedback from the participating students as follows:

1. Results of Participant Satisfaction Survey (percentage)

<table>
<thead>
<tr>
<th>Category</th>
<th>Very dissatisfied</th>
<th>Somewhat dissatisfied</th>
<th>Somewhat satisfied</th>
<th>Very satisfied</th>
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<tr>
<td>Keynote speeches</td>
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<td>67.9</td>
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<td>Lectures</td>
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<td>7.4</td>
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<tr>
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<td>6.2</td>
<td>28.4</td>
<td>60.5</td>
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<tr>
<td>Overall evaluation</td>
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<td></td>
<td>70.4</td>
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</table>

Note: N = 81

2. Reasons for “Overall Evaluation” Ratings

Reasons for high rating

❖ Level of keynote speakers and lecturers was high.
❖ The content of speeches/lectures was very interesting.
❖ I could acquire a great deal of knowledge about cutting-edge research.
❖ Keynote speeches/lectures expanded my research interests.
❖ I had opportunities to meet famous professors in my field.
❖ This event provided good networking opportunities with professors and friends from around the world.
❖ Program was well organized.
❖ Management of the program was good.
❖ Facilities, hotel, food, receptions were excellent.
❖ AC21 staff were very kind and responsible.

Reasons for low rating

➢ Speeches/lectures were too technical.
➢ The lectures did not always have a clear message.
➢ Lecture topics were too broad, so it was hard to put knowledge together across the entire conference.
➢ It was difficult to concentrate for 2 hours straight.
➢ The schedule was a bit full.
➢ Student presentation preparation time was too short.
➢ I would like more outdoor activities and group-building activities.
Participating Universities

Chemnitz University of Technology (Germany)
Chulalongkorn University (Thailand)
Gadjah Mada University (Indonesia)
Huazhong University of Science and Technology (China)
Jilin University (China)
Kasetsart University (Thailand)
Nagoya University (Japan)
North Carolina State University (U.S.A.)
Northeastern University (China)
Shanghai Jiao Tong University (China)
Stellenbosch University (Republic of South Africa)
The University of Freiburg (Germany)
The University of Minnesota (U.S.A.)
The University of Strasbourg (France)
Tongji University (China)
Institut Teknologi Bandung (Indonesia)
## Participants

### China
- Maoyi Fang, Huazhong University of Science and Technology
- Qin Hu, Huazhong University of Science and Technology
- Fei Wang, Huazhong University of Science and Technology
- Saisai Zhou, Huazhong University of Science and Technology
- Baiyan Chen, Jilin University
- Lu Chen, Jilin University
- Yaqian Wang, Jilin University
- Bin Cao, Northeastern University
- Qingbin Meng, Northeastern University
- Juntian Qu, Northeastern University
- Wang Xiaocheng, Northeastern University
- Huagang Zhong, Northeastern University
- Han Ruifeng, Shanghai Jiao Tong University
- Lu Wang, Shanghai Jiao Tong University
- Wang Xiaoli, Shanghai Jiao Tong University
- Renzhan Yin, Shanghai Jiao Tong University
- Xu Zheng, Shanghai Jiao Tong University
- Min Fan, Tongji University
- ZhenKun Lin, Tongji University
- JieQiong Ma, Tongji University
- Qian Rao, Tongji University
- Jiawei Tao, Tongji University
- Zhen Xiao, Tongji University

### France
- Alicia Vallauri, University of Strasbourg

### Germany
- Carolin Schultz, Chemnitz University of Technology
- Julia Weißhuhn, Chemnitz University of Technology
- Nicholas Lahr, University of Freiburg
- Vanessa Zabroky, University of Freiburg

### Indonesia
- Robbi Nur Rakhman, Institut Teknologi Bandung

### Japan
- Michihiro Fujimoto, Nagoya University
- Lei Gong, Nagoya University
- Yusuke Kurokawa, Nagoya University
- Tomoya Namba, Nagoya University
- Kanako Uehara, Nagoya University

### Republic of South Africa
- Nava Derakhshani, Stellenbosch University
- Riyaadh Mohamed, Stellenbosch University
- Corneli Smit, Stellenbosch University
Thailand

Anutida Chimbub Chulalongkorn University
Supot Chunhachoti-ananta Chulalongkorn University
Masiri Manomaiwajee Chulalongkorn University
Khamla Nanthavong Chulalongkorn University (Lao P.D.R.)
Thana Potanon Chulalongkorn University
Napa Poutrakan Chulalongkorn University
Thanakorn Rodcharoen Chulalongkorn University
Suchonma Sookruksawong Chulalongkorn University
Netchanok Srisang Chulalongkorn University
Duangkamon Sumanachayanun Chulalongkorn University
Pitcha Suriyakul Na Ayudhaya Chulalongkorn University
Teerapat Tangsomboon Chulalongkorn University
Settasak Tivananthakorn Chulalongkorn University
Montira Trinapakul Chulalongkorn University
Rokeya Akter Kasetsart University (Bangladesh)
Sunattha Attisilwet Kasetsart University
Aidil Azhar Kasetsart University (Indonesia)
Sawaluck Bua-in Kasetsart University
Nikorn Chaicharoen Kasetsart University
Ajith Ethugala Kasetsart University (Sri Lanka)
Piyaluck Hongsa Kasetsart University
Jeerayut Hongwiangjan Kasetsart University
Pinpinutt Junhaeng Kasetsart University
Attawut Kantavong Kasetsart University
Panuwat Khomta Kasetsart University
Shah Md. Monir Hossain Kasetsart University (Bangladesh)
Natrapee Nakawajana Kasetsart University
Nisufyan Nimaming Kasetsart University
Sirinad Noypitak Kasetsart University
Sajan Palanchoke Kasetsart University (Nepal)
Chakkrapong Rattamanee Kasetsart University
Panawat Sikhandakasmita Kasetsart University
Valerie Suwanseree Kasetsart University (U.S.A.)
Siriraprapa Tanee Kasetsart University
Tshering Tobgyel Kasetsart University (Bhutan)
Chinnawoot Toechamroen Kasetsart University
Kullanitpitch Udomthanadech Kasetsart University
Mai Vu Thi Kasetsart University (Vietnam)
Dipti Wankhade Kasetsart University (India)

United States of America

Sander Denham North Carolina State University
Stephanie Mathews North Carolina State University
Jason Whitham North Carolina State University
Theresa Cira University of Minnesota
Amy Morey University of Minnesota
Patronage Organizations

Japan International Cooperation Agency (JICA)

Japan Society for the Promotion of Science (JSPS)

United Nations Educational, Scientific and Cultural Organization (UNESCO)

Global 30 Project supported by Ministry of Education, Culture, Sports, Science and Technology (MEXT, Japan)

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- SCG
- THAI DENSO GROUP
- The Japan Foundation
- The OBAYASHI Foundation
- TOKAI RIKAI GROUP (TRA, TRT, TSB)
- TOYODA GOSEI GROUP (TGAS, TGT, TGRT)
- TOYOTA BOSHOKU ASIA
- TOYOTA MOTOR THAILAND CO., LTD.
- Toyota Tsusho Corporation
Organizing Committee

<Chulalongkorn University>

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<tr>
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<th>Position</th>
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<tr>
<td>Kua Wongboonsin</td>
<td>Professor, Vice President for Research Affairs</td>
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<tr>
<td>Kalaya Tingsabadh</td>
<td>Assistant Professor, Vice President</td>
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<td>Boonchai Stitmannaithum</td>
<td>Associate Professor, Vice President</td>
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<td>Tanit Tongthong</td>
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<td>Boonsom Leadhirunwong</td>
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<td>Ponthong Malakul</td>
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<td>The Petroleum and Petrochemical College</td>
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<td>Kriengkrai Boonlert-U-Thai</td>
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<td>Proadpran Punyabukkana</td>
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<td>Manoj Lohatepanont</td>
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<td>Sirimonporn Suriyawongpaisal</td>
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<td>Saiwarun Chaiwanichsiri</td>
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<td>Chantra Tongcumpou</td>
<td>Assistant Professor, Director of Environmental Management Program</td>
<td>Graduate School</td>
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<td>Sangchan Limjirakan</td>
<td>Director of Environment, Development and Sustainability Program</td>
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<td>Chalathip Jayanama</td>
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<td>Chutimon Siriwittayarat</td>
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<Kasetsart University>

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<td>Lily Kaveeta</td>
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<td>Nuttakan Nitayapat</td>
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<td>Vichan Vichukit</td>
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<td>Seksom Attamangkune</td>
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<td>Associate Professor, Associate Dean</td>
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<td>Assistant Professor, Associate Dean for Information Technology and International Affairs</td>
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<td>Hathaitus Semchuchot</td>
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<td>Araya Bijaphala</td>
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<td>Rujira Pondjetsupan</td>
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<**Nagoya University**>

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**Atsuko Hisada**  Section Chief  International Planning Section

**Miyuki Kanda**  Staff  International Planning Section

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### Special thanks to:

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