

For Immediate Release

August 13, 2007

MEDIA RELEASE

Bioengineering and Nanotechnology Forum in Singapore Features Scientific Breakthroughs from the World's Leading Research Institutions

More than 260 international participants convene in Biopolis for SBE's 3rd International Conference on Bioengineering and Nanotechnology hosted by IBN

Singapore, August 13, 2007 – Twenty-five international experts will share their new discoveries at the Society for Biological Engineering (SBE)'s 3rd International Conference on Bioengineering and Nanotechnology (ICBN 2007), which is hosted by the Institute of Bioengineering and Nanotechnology (IBN) at Biopolis from August 13 to 15.

ICBN 2007's line-up of invited speakers come from leading universities and institutes around the world, including the Massachusetts Institute of Technology, University of California, Los Angeles, Harvard University, California Institute of Technology, University of California, Santa Barbara, University of Washington, Sandia National Labs, Florida State University, ETH Zürich, Max Planck Institute, Duke University, Purdue University, Tokyo Women's Medical University, University of Tokyo, Hong Kong University of Science and Technology, National Tsing Hua University, Jilin University and University of Wollongong.

Over three days, these experts will present scientific breakthroughs in the following areas:

- Drug Delivery Systems and Devices
- Protein and Gene Delivery Systems
- Cell and Tissue Engineering
- Artificial Organs and Implants
- Bio-MEMS and Microbioreactors
- Medical and Biological Devices
- Biosensors and Molecular Diagnostics
- Drug Screening and Pharmaceuticals Synthesis
- Biocatalysis, Organocatalysis and Nanobiotechnology
- Biological and Biomedical Imaging
- Biomimetic and Self-Assembled Materials
- Nanoparticles, Nanocomposites and Nanoporous Materials for Bio-Applications

Co-sponsored by IBN and SBE, ICBN is the first international conference devoted to the interdisciplinary fields of bioengineering and nanotechnology and their impact at the interface of science, engineering and medicine. Chaired by IBN's Executive Director, Prof Jackie Y. Ying, ICBN 2007 will feature two keynote lectures on its opening day.

The first Keynote Lecture on “Designing Nanocrystal Quantum Dots for Biological Imaging” will be delivered by Professor Mounji Bawendi from the Massachusetts Institute of Technology. Professor Bawendi is one of the original Bell Laboratories’ inventors of quantum dots, or fluorescent nanocrystals. His talk will focus on new methods of engineering quantum dots, which provide greater control of their particle size and functionality, thereby allowing them to be used not only for biological imaging, but also for biosensing applications.

The second Keynote Lecture on “NanoSystems Biology and New Technologies for *In Vitro* and *In Vivo* Diagnostics of Cancer” will be presented by Professor James R. Heath from the California Institute of Technology. Professor Heath received his Ph.D. in Chemistry in 1988 from Rice, where he was the principal student involved in the Nobel Prize-winning discovery of C60 and the fullerenes. His talk will focus on network models of human diseases such as cancer, and how these models can be harnessed for information that will help the clinical treatment of the disease.

According to Conference Chair Prof Jackie Ying, “ICBN 2007 will feature 25 invited talks, 18 contributed oral presentations and 115 poster presentations. We are excited by the caliber of the invited speakers and the quality of the contributed presentations. We look forward to an excellent program over the next three days.”

More than 260 delegates from the USA, UK, Denmark, Germany, Switzerland, Latvia, Australia, Japan, Korea, Iran, India, China, Taiwan, Hong Kong and Singapore, are expected to attend ICBN 2007. Industry support for the conference has also been strong, with over 25 sponsors and exhibitors.

The first conference in this series was also chaired by Prof Jackie Ying and was held in September 2004 at the Biopolis in Singapore. The second ICBN was held in September 2006 at the University of California, Santa Barbara, USA.

Singapore’s Minister for Foreign Affairs, Mr George Yeo, is the Guest-of-Honor at the Official Opening of ICBN 2007 on Monday, August 13, from 9:30am to 10:45am.

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ANNEX

About ICBN

1. ICBN was launched in 2004 by IBN, SBE and the American Institute of Chemical Engineers (AIChE), to foster greater international knowledge exchange and collaboration in the area of bioengineering and nanotechnology – two interdisciplinary fields that cut across and integrate different areas in science, engineering and medicine to create breakthroughs in biomedical research. The inaugural conference was hosted by IBN from September 26-29, 2004 in Biopolis, Singapore. The three-day conference was attended by 200 international delegates from around the world, and featured 23 invited talks by leading international experts, as well as 29 contributed presentations and more than 80 scientific posters. Over 15 exhibitors, sponsors and advertisers also lent their support to the event
2. SBE hosted the second ICBN from September 5-7, 2006 at the University of California, Santa Barbara, USA. In line with its aim of establishing a platform for multidisciplinary collaboration, this event was co-sponsored by the Nanoscale Science and Engineering Forum of AIChE, the California NanoSystems Institute at the University of California, Santa Barbara, the Bindley Bio-Science Center at Purdue University, the Birck Nanotechnology Center and Discovery Park, the National Science Foundation, the American Electrophoresis Society, the American Vacuum Society, as well as the Materials Research Society. ICBN 2006 featured 17 invited lectures, 52 contributed presentations and 64 scientific posters. 183 delegates from 12 countries attended this conference, which also attracted participation from 9 exhibitors and sponsors.
3. Due to the success of ICBN 2004 and ICBN 2006, as indicated by the tremendous interest and support from the international research community and industry, the conference has been established as an annual event starting from 2007.

About IBN

1. The Institute of Bioengineering and Nanotechnology (IBN) is a member of the Agency for Science, Technology and Research (A*STAR). Established in March 2003, IBN is headed by its Executive Director, Professor Jackie Y. Ying, who was recruited from MIT. (Please refer to the attached bio)
 - Born in Taipei and raised in Singapore and New York, Prof Ying has been on MIT's Chemical Engineering faculty since 1992, and was promoted to Professor in 2001. She is among the youngest to be promoted to this rank at MIT.
 - She was named in the centennial issue of MIT's Technology Review magazine as one of the world's 100 young people likely to lead 21st Century innovators. In 2005, she was appointed to be among 237 leaders in the World Economic Forum's panel of Young Global Leaders, and was also elected as a member of the German Academy of Natural Scientists, Leopoldina.
 - Prof. Ying serves on the Advisory Board of the Society for Biological Engineering. She is the conference chair of ICBN 2004 and 2007. In 2006, she was appointed by the U.S. National Academy of Engineering to serve on the blue-ribbon committee that identifies the grand challenges and opportunities for engineering. She was also recently appointed to the Scientific Advisory Board of Molecular Frontiers, a global think tank that promotes molecular sciences.

2. The Institute's mission is to establish a broad knowledge base and conduct innovative research at the interface of bioengineering and nanotechnology. Positioned at the frontiers of engineering, IBN is focused on creating knowledge and cultivating talent to develop technology platforms that will spur the growth of new industries. IBN also fosters an exciting, multidisciplinary research environment for the training of students and young researchers to spearhead biomedical advancement.
3. IBN has carved a niche for itself by converging multiple disciplines across engineering, science and medicine to develop novel approaches and technological breakthroughs in the following six areas:
 - Delivery of Drugs, Proteins and Genes, where the controlled release of various therapeutics involves the use of nanoparticles with functionalized moieties for targeting diseased cells and organs, or for responding to specific biological stimuli.
 - Cell and Tissue Engineering, where sophisticated materials architecture is employed to design and fabricate living replacement devices for surgical reconstruction and transplantation.
 - Artificial Organs and Implants, where multi-functional systems and devices are engineered as biomimetic structures, for use as organ replacement.
 - Pharmaceuticals Synthesis and Nanobiotechnology, which encompasses the efficient catalytic synthesis and separation of chiral pharmaceuticals and specialty chemicals.
 - Medical and Biological Devices, which involve nanotechnology and microfabricated systems for the detection and treatment of diseases.
 - Bioimaging and Biosensing, which comprises the imaging of cells, tissues, small animals, and biomaterials using advanced techniques and novel imaging tags, as well as the sensing and detection of biologics and biomolecules using nanostructured materials.
4. IBN's interdisciplinary research is carried out by scientists who have been recruited from top institutions from around the world. The Institute has an active recruitment drive, and has received over 7,200 applications for research positions since March 2003.
 - Current staff strength: 181
 - 17 Principal Investigators, 64 Research Staff
 - 57 Technical Staff, 19 Administrative Staff
 - 24 PhD and MSc Students
 - IBN's researchers are recruited globally from: MIT, Harvard, Princeton, Stanford, Caltech, Berkeley, Duke, Johns Hopkins, Cornell, Wisconsin, Cambridge, Imperial, Heidelberg, Berlin, Cologne, Bonn, UIm, Zürich, Amsterdam, Montpellier, Lausanne, Gothenburg, Kyoto, JAIST, Tsinghua, Fudan, Chinese Academy, National Taiwan, Seoul, KAIST, IIT, IIS, New South Wales, etc.
 - They have multidisciplinary backgrounds in biological, chemical, electrical and mechanical engineering; biology; chemistry; physics; materials science; computer science; pharmacy; and medicine.

5. IBN has made excellent progress towards achieving its mission of advancing bioengineering and nanotechnology. Its innovative research has created intellectual properties at the interface of these two emerging fields.
 - To-date, the Institute has published 346 papers in top scientific journals, and filed 402 patent applications for its inventions.
6. In 2003, IBN launched the Youth Research Program (YRP) to expose young people and their educators to state-of-the-art scientific research, in an effort to promote an active research culture among Singaporean youth.
 - The YRP has since reached out to more than 17,900 students and teachers from 171 schools through activities such as Open Houses, school talks, career fairs, workshops and research attachments.
 - More than 760 students and teachers have also been attached to IBN for a minimum period of four weeks, during which they received hands-on experience in scientific research under guidance from an IBN researcher.
 - The YRP's latest initiative, Nano-Bio Kits, which were launched in 2007, are educational tools to help teachers introduce practical applications of bioengineering and nanotechnology to their students through interactive sessions using basic laboratory equipment commonly available in schools. Each kit contains materials for teachers and students to conduct a series of experiments that demonstrate various scientific concepts and techniques used in research. The first three kits in the series are the Biological Fuel Cell Kit, the Thermo-Responsive Hydrogel Kit and the Dielectrophoresis Chip Kit.
 - 12 schools have since incorporated the kits into their science curriculum.
 - The Kits are also featured in exhibitions at the Miraikan Museum in Tokyo, Japan, and the Museum of Modern Art in New York, USA.
7. For more information, visit www.ibn.a-star.edu.sg.

About SBE

1. The Society for Biological Engineering (SBE) is a technological community for engineers and applied scientists integrating biology with engineering, which was established by AIChE in 2004.
2. SBE's members come from a broad spectrum of industries and disciplines and share in SBE's mission of realizing the benefits of bioprocessing, biomedical and biomolecular applications.
3. Visit bio.aiche.org for more information on SBE.