

## Thailand meets “Paro”: AIST participates in Thailand Science Tech 2005

At the request of the Thai government and its National Science and Technology Development Agency, AIST demonstrated its technologies at Thailand Science Tech 2005, which was held in Bangkok from August 23 to 28. Technologies exhibited included the robot seal “Paro”, photocatalysts, nanobubble water, urination sensors, root formation promoters, artificial olfaction technology, a technique for separating cells by optical means, robots (video presentation), and simulation results on the Indian Ocean tsunami resulting from the Sumatra Earthquake. The most popular of the exhibits was Paro, which instantly attracted a great deal of attention after being reported on by the local media. The news was even broadcast by NHK in

Japan. During the event, AIST delegates were able to discuss joint research opportunities with NSTDA and various Thai enterprises.

Thailand Science Tech is an event held under the auspices of the Thai government with the aim of enhancing public understanding of science and technology. This year it attracted some 100,000 visitors per day with a total of about 600,000 people, including many children. The exhibit was a great success, as the picture shows.

AIST presented one Paro unit to Princess Sirindhorn and this was covered by local newspapers. The Princess visited AIST’s booth personally and asked the researchers several questions.



## South African delegation led by Deputy Environmental Minister visits AIST Tsukuba to see environmental technologies

On October 12, Ms. Rejoice Mabudafhasi, South African Deputy Minister of Environmental Affairs and Tourism, visited AIST Tsukuba West, together with 21 delegates, including her ministry’s executive officials and four provincial ministers. The delegation exchanged opinions with AIST officials on environmental and 3R (reduce, reuse and recycle) technologies and toured related research labs. After welcoming remarks from AIST’s Senior Vice President Kodama and an introduction to AIST by International Affairs Department Director-General Matsuo, the Deputy Director of the Research Institute for Environmental Management Technology, Mr. Kobayashi, explained his institute’s research into 3R technology. The delegation then visited the labs involved in metal recycling research (led by Tanaka) and the development of technology for recycling waste plastic into fuel and other materials (led by Senior Research Scientist Kodera). The Deputy Minister and other delegation members said that South Africa was addressing

recycling and 3R strategies seriously and that they were very interested in the advanced technologies of AIST and other Japanese organizations. They expressed their desire to strengthen ties with Japan in this area and eagerly inquired about legal systems and collaboration with industry for the promotion of 3R implementation.



## Second AIST–VAST workshop and visit of VAST Director General Dang Vu Minh to AIST

The second joint workshop between AIST and the Vietnamese Academy of Science and Technology (VAST) was held on October 3 and 4 at AIST Tsukuba. This workshop was based on the memorandum of understanding (MOU) signed by the two institutes. During the workshop, participants from both parties exchanged views on the potential for joint research projects. Discussions covered a wide range of topics including environmental and energy-related technologies, such as waste water treatment, biomass, coastal environment and marine geology, and geogrid and information technologies, including multilingual open source software and grid computing. On October 6, a delegation from VAST including VAST Director General Minh and

some of his deputy directors visited AIST Tsukuba. They held discussions with AIST President Yoshikawa, Senior Vice President Kodama, and related research coordinators over the future promotion of AIST-VAST joint research and agreed on an action plan. On the same day, the delegation toured the Research Center for Photovoltaics, the Grid Technology Research Center, Science Square Tsukuba, and the Geological Museum. The next day, they visited the AIST Tokyo Waterfront and Akihabara sites, where they met with Vice President Nakajima, Information Security Research Center Director Imai, and Information Technology Research Institute Director Hashida.



## AIST signs cooperation agreement with ITRI Taiwan

AIST signed a cooperation agreement with the Industrial Technology Research Institute (ITRI) of Taiwan on September 26 in Hsin Chu, Taiwan. ITRI was founded in 1973 as a non-profit research organization by integrating Taiwan's three national laboratories specializing in industrial technology. Today, the organization is recognized as a leading Taiwanese research institute in industrial technology.

The research areas of ITRI are similar to those of AIST, covering a broad range of industrial technologies. There have been previous instances of research collaboration between AIST research units and ITRI laboratories, on an individual project basis. However, the newly concluded agreement officially sets the guidelines for mutual cooperation by defining the handling of intellectual property, the procedures for dispute settlement, and other details. Now that the agreement has been signed, AIST expects that its research units will be able to conduct joint research and exchange information with ITRI more easily.

A joint symposium was held to coincide with the signing of this agreement. Researchers from both sides gave presentations on their activities in four fields: environment and energy; nanotechnology, materials and manufacturing; metrology and measurement technology; and life science. This event contributed to deepening mutual understanding and helped to foster stronger partnerships.



## Delegation from Vietnam's National Science and Technology Policy Council visits AIST Tsukuba

A delegation from Vietnam's Science and Technology Policy Council, led by Chairman Chu Tuan Nha, paid a courtesy visit to President Yoshikawa at AIST Tokyo Headquarters on October 25. The delegation visited AIST Tsukuba, where they heard Director Kodama's welcoming remarks, followed by Vice President Yoshikai's explanation of AIST's second medium-term program. Vice President Nakajima gave a presentation on major developments and future plans concerning the research partnership with VAST (Vietnamese Academy of Science and Technology). Research Coordinators Yamabe, Ohmaki and Tsukuda described the progress of AIST-VAST research cooperation, including the discussions held and the action plan developed at the joint workshop in early October. After this meeting, the delegation toured Science Square Tsukuba, the Geological Museum, and the lab of the Energy Technology Research Institute's Clean Power System Group at AIST Tsukuba East. Noting AIST's emphasis on environmental research, Chairman Nha

mentioned the need for Vietnam to take measures against the environmental destruction associated with industrialization.



## Mongolian Deputy Minister of Education, Culture and Science visits AIST Tsukuba

Professor Sanjbegziin Tumor-Ochir, the Mongolian Deputy Minister of Education, Culture and Science, and the Minister-Counsellor of the Mongolian Embassy visited AIST Tsukuba on October 28. They met with Vice President Nakajima, who made welcoming remarks, and International Coordinator Miyazaki, who provided an overview of AIST. He also met with AIST researchers who have connections with Mongolia (Kaoru Obuchi and Hitoshi Iwahashi in life science; Mahito Watanabe, Yoshio Watanabe, Yasushi Watanabe and Sereenen Jargalan, a visiting researcher from Mongolia, in geology; Koichi Sakuta and Kenji Otani in environment and energy). The researchers presented summaries of their research. Obuchi spoke about his research on technology to inhibit the fermentation of sea buckthorn berries. (Sea buckthorn is a Mongolian plant that belongs to the Elaeagnaceae family and its berries can be used as an active ingredient in nutritional foods.) The geological researchers discussed GSJ (the Geological Survey of Japan) and mineral resource development and surveying. The environment and energy researchers described their photovoltaic power generation experiments in the Gobi Desert.

The delegation then visited Science Square Tsukuba and learned about AIST research activities in a wide range of areas. The deputy minister appreciated the specific description of joint research achievements with Mongolia and expressed his willingness to extend his country's cooperative relationship with AIST beyond the three current research fields.



## German–Japanese Forum on IT

The German-Japanese Forum on Information Technology is a conference that aims to deepen the two countries' mutual understanding and promote exchange in the information technology field. It also serves to promote human resource interaction and the development of information technology through close cooperation. This year's forum, the 15th conference, was hosted by AIST and Fraunhofer-Gesellschaft and took place at AIST Akihabara on November 1 and 2.

Experts from both countries held wide-ranging discussions on selected topics, such as grid technology

and human-technology interaction, which are emerging areas of information technology. During the symposium on the first day, AIST SOA (Service Oriented Architecture), the institute's ongoing research initiative to revolutionize industry, attracted the attention of participants as an attempt to comprehensively address both forum themes. The working sessions on the second day were dedicated to an in-depth debate on the possibilities for future research collaboration. This year's forum was also one of the events celebrating "Germany Year in Japan 2005/2006".



## Gfarm Workshop 2005 takes place

Gfarm Workshop 2005 was held on September 9 at Akihabara Convention Hall. The event was hosted by the Grid Technology Research Center, AIST under the auspices of Grid Consortium Japan.

Gfarm is a next-generation network shared file system being developed by a group led by AIST, and has been available as open-source software since November 2003.

In the workshop, participants learned about new functions of Gfarm 1.2, whose release coincided with this event, and listened to eight presentations on Gfarm research, utilization and commercialization. The presenter of Gfarm's latest enhancements referred to improved performance, higher fault tolerance, and accessibility from Windows PCs via Web browsers, and even demonstrated high-speed access from a Windows PC to the Gfarm file system consisting of 66 distributed PCs in Tsukuba and Otemachi.

The event attracted 74 participants from industry, academia and other sectors. At the round table conference to conclude the workshop, Gfarm developers and participants

held a lively debate over the future of Gfarm. The Gfarm Workshop was broadcast live across Japan over the Internet in RealVideo format, with the support of IJ-MC and SOUM Corporation.



# A New Unit Starts on October 1st

The Biomass Technology Research Center was established with two major objectives: the production of ethanol and Ethyl Tertiary-Butyl Ether (ETBE) from woody biomass resources that have the highest capability for carbon dioxide fixation; and the production of BTL-FT diesel fuel by developing a Biomass to Liquids (BTL) total system involving gasification, hot gas cleaning, Fischer-Tropsch (FT) synthesis and hydrocracking. Also, the production processes for these biomass-derived liquid fuels are to be systematically evaluated through simulation in order to promote the substitution of biomass and other renewable energy resources for petroleum and other fossil fuel resources and to develop a practical biomass transfer process with high cost-benefit performance that can contribute to the creation of a society based on energy recycling. The major research areas include the following:

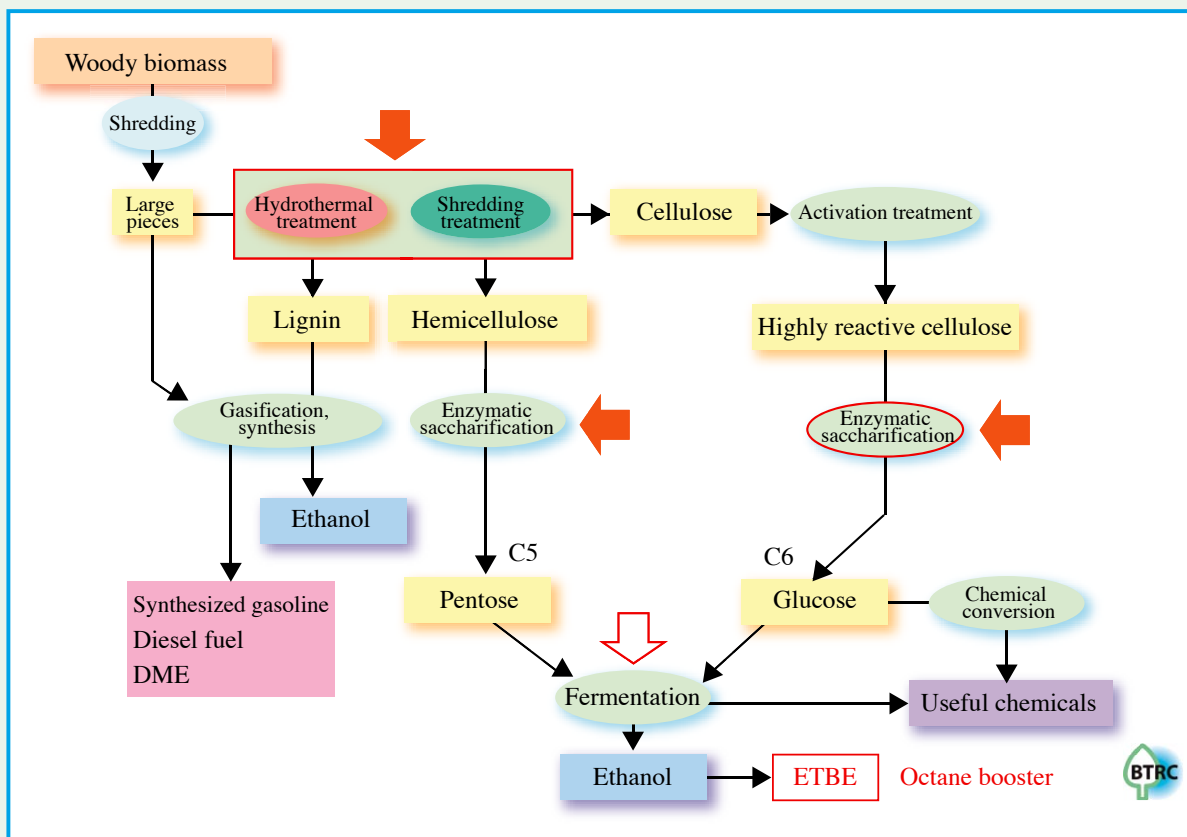
1) Development of a highly efficient ethanol production method combining constituent separation of woody biomass, hydrothermal and mechanochemical treatment and

enzymatic saccharification. Incorporation of the resultant ethanol into ETBE materials.

2) Gasification of woody biomass. [Highly efficient][High-degree] gas cleaning by dry, high-temperature removal of tar and hazardous substances using activated carbons. Development of new BTL fuel synthesizing technology using a combination of FT synthesizing and reforming catalysts.

3) Preparation of a database on the physical, chemical and biological reactions of various types of biomass. Development of systematic simulation technologies to evaluate the economic and environmental performance of the conversion processes in use.

4) Diffusion of technologies involving biomass energy use to other parts of the world in cooperation with biomass research institutions in other countries, especially in Asia, where large amounts of biomass resources are available.



Research Strategies in use at the Biomass Technology Research Center