Japan Science & Technology Newsletter **October, 2011**

To celebrate the 25th Anniversary of Science and Technology co-operation between Canada and Japan, the Embassy of Japan presents the *Japan Science & Technology Newsletter*, a quarterly report on Japanese science and innovation highlights and news.

1. Japan-Canada S&T Cooperation

1.1 Japan's First Astronaut visits Canada

Dr. Mamoru Mohri, Japan's first astronaut and Chief Executive Director of the National Museum of Emerging Science and Innovation (Miraikan) visited Canada in September as part of the commemoration of the 25th Anniversary of Japan-Canada Science and Technology Cooperation.
In Ottawa, Dr. Mohri, with Ambassador Ishikawa, met with Minister of Industry, the Honorable Christian Paradis and then with Minister of State (Science and Technology), the Honourable Gary Goodyear to exchange views on global science and technology cooperation, including international space development, and Japan's post-disaster recovery.
Dr. Mohri also conducted public lectures; co-hosted by the Embassy and the Canada Aviation and Space Museum where he regaled an audience of approximately 90 guests, sharing with school children and adults his experiences conducting science experiments in space during his two missions in Space Shuttle Endeavour, and the wonders of living in space. During his lecture Dr. Mohri held interactive dialogue with students about space, providing an opportunity for them to learn about space and its fascinations.
During his lecture at the Canadian Museum of Civilization, Dr. Mohri spoke to an audience of approximately 270 guests on the roles of the Miraikan, and Japan's advanced science and technology, including the discovery of iPS cells, developments in robotics for senior citizens, deep sea research and space development, and on his theory of science through his two space missions. This lecture was held as a special event of the Japanese exhibition at the CMC; "Japan: Tradition. Innovation." (September)
http://www.ca.emb-japan.go.jp/canada_e/Cultural_Events/Dr_Mohri_2011.html

1.2 JST and NSERC sign MOU for research collaboration

The Japan Science and Technology Agency (JST) and the Natural Sciences and Engineering Research Council of Canada (NSERC) sign a Memorandum of Understanding to enhance collaboration between Canadian and Japanese research and innovation communities, to achieve world-class scientific and technical results, leading to new innovative technologies. Dr. Michiharu Nakamura, President of JST and Dr. Suzanne Fortier, President of NSERC announced the agreement in Kyoto, Japan at the 25th Anniversary Celebration of the Canada-Japan Science and Technology Agreement. The NSERC – JST MOU offers teams of Japanese and Canadian researchers the opportunity to apply to their respective agencies for grants that support research projects in priority areas; both organizations will issue in early 2012, calls for proposals through existing programs to support joint projects for Renewable Energy and Energy Use research topics. Canadian scientists can apply through NSERC's Strategic Project Grants, and Japanese scientists can apply through JST's Strategic International Research Cooperative Program (SICP). (October 1)
http://www.nserc-crsng.gc.ca/Media-Media/NewsRelease-CommuniqueDePresse_eng.asp?ID=319

1.3 JAIST and Carleton University sign MOU

The Japan Advanced Institute of Science and Technology (JAIST) signs a memorandum of understanding with Carleton University, the first of its kind between JAIST and a Canadian university. The 5 year agreement encourages cooperation between the 2 institutions in developing educational and scientific exchanges for faculty, staff and students, and to collaborate on research programs and share materials. JAIST, with more than 170 faculty members and 1,000 graduate students, fosters world-recognized education, research and advances in science and technology in Japan and through an ongoing international process opens its doors to foreign students and researchers. (August 18)
http://www.jaist.ac.jp/english/top/2011/0824-2.html

1.4 Japanese satellite to contain Canadian laser system

Canadian firm Neptec Design Group will design a laser alignment system for the Japan Aerospace Exploration Agency (JAXA)'s astronomical observation satellite, Astro-H, an X-ray telescope. Astro-H will use the Canadian ASTRO-H Metrology System at the end of its boom to precisely measure the satellite's distortions by using a series of mirrors to verify its position, and to prevent any wobbles from blurring its pictures; allowing the satellite to examine sources of X-rays including black holes and galaxies and other objects millions of light years away. (August 15)
http://www.asc-csa.gc.ca/eng/satellites/astro-h.asp

2. Japanese S&T

2.1 The 4th Science and Technology Basic Plan

The Government of Japan announces the 4th Science and Technology Basic Plan focused on achieving sustainable growth and societal development while reconstructing from the Great East Japan Earthquake and tsunami, leading responses to global challenges including large scale natural disasters, creating intellectual property and fostering science and technology as a culture. The Plan includes the integrated expansion of the Science, Technology and Innovation (STI) policy and greater emphasis on "human resources and the role of organizations supporting them." To achieve sustainable and societal development, the STI will aim at reconstruction and revival while promoting green and life innovation and reforming and building new systems for STI promotion. In response to the priority issues facing Japan, measures for the realization of a safe and comprehensive quality of life will be promoted, as will the development of common bases for S&T, enhancement of Japan's industrial competitiveness and the strategic development of Japan's international activities; R&D promotion for issues common across Asia, and the development of new S&T diplomacy. The enhancement of basic research and human development will be achieved through promotion and support for graduate school education, improving career paths for researchers and forming international-level research environments and foundations by further developing university facilities, and intellectual and IT infrastructure. Japan will also pursue initiatives to develop public understanding and support for STI and will expand its public- and private-sector investments to more than 4% GDP, while increasing government R&D investment to 1% GDP, which will total 25 trillion yen. (August 19)

2.2 iPSC technology patents granted to Kyoto University

Kyoto University receives from the United States Patent and Trademark Office its first patent for induced pluripotent stem cell (iPSC) technology. The patents are based on the iPSC technology invented by Dr. Shinya Yamanaka, director of the Center for iPS Cell Research and Application (CiRA) at Kyoto University; in 2006 his research team was the first to generate iPSCs by introducing four genes; Oct4, Klf4, Sox2 and c-Myc into somatic cells. The U.S. patent covers combinations of nuclear reprogramming family factors comprising an Oct family gene, a Klf family gene, and Myc family gene, or an Oct family gene, a Klf family gene and a cytokine. The technology has great potential in cell therapy and the development of new drugs. Kyoto University has also been granted patent rights associated with iPSC technology in Japan, Israel, New Zealand, Singapore, South Africa, Eurasia and Europe. (August 11)
http://www.cira.kyoto-u.ac.jp/e/pressrelease/news/110812-150837.html

2.3 New record for highest magnetic field

Japan's National Institute for Material Science (NIMS), Magnet Development Superconducting Wire Unit has created a new world record of the highest generated magnetic field with a superconducting magnet; a magnetic field of 24.0 Tesla with Japan Superconductor Technology Inc., as part of the Strategic Promotion of Innovative Research and Development program of the Japan Science and Technology Agency. Researchers fabricated a coil, using an oxide high temperature superconducting wire material, which was inserted on the inner side of a metal superconducting magnet that generates a field of 17.2T. It was confirmed that it's possible to generate a field of 24.0T in the center of the magnet, the previous world record was 23.5T; this achievement advances fabrication technology for high field coils using GdBCO thin film wire material, and is expected to enable a substantial reduction in the size of high field nuclear magnetic resonance devices and reduced consumption of liquid helium. (September 9)
http://www.nims.go.jp/eng/news/press/2011/09/p201109070.html

Related Links
Japan Science and Technology Agency http://www.jst.go.jp/EN/
Science Links Japan http://sciencelinks.jp/
Japan Aerospace Exploration Agency http://www.jaxa.jp/index_e.html
Japan Today – Technology http://www.japantoday.com/category/technology/page/2