

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 Minister of State for Science and Technology visits Japan

The Honourable Gary Goodyear, Canadian Minister of State (Science and Technology) visited Japan and participated in the ninth annual Science and Technology in Society Forum (STS forum), held on October 7th to 9th, in Kyoto. Regarding his visit to Japan he said, "There are tremendous opportunities for international researchers and businesses to come to Canada and carry out research and development. My visit to Japan allowed me to showcase these opportunities and promote stronger links with Canadian innovators." Minister Goodyear also encouraged further international cooperation, stronger business relationships and enhanced trade with Canada. (October 11)



<http://news.gc.ca/web/article-eng.do?mthd=advSrch&crtr.page=2&nid=700159&crtr.kw=gary%2Bgoodyear>

1.2 Japan-Canada: Global Cluster Collaboration Forum

The Japan-Canada: Global Cluster Collaboration Forum was held on October 5th in Tokyo bringing together senior representatives of technology clusters from a variety of regions, and researchers and government officials from the two nations. The event was aimed at initiating new relationships between the countries' technology clusters for enhanced regional innovation, in recognition of the important roles regional network systems and clusters play in economic growth and development. The Cluster Forum featured presentations and dialogues by distinguished representatives in the fields of aerospace technology, medical sciences and ICT from both Japan and Canada, and attendees participated in discussions. Canadian Minister of State (Science and Technology), the Honourable Gary Goodyear attended the Cluster Forum and spoke about the importance of technology and research. (October 5)



1.3 JAMSTEC and NRCan sign Declaration of Intent

The Japan Agency for Marine-Earth Science and Technology (JAMSTEC) and Natural Resources Canada (NRCan) signed a Declaration of Intent on cooperation in the field of geodynamics to further the research and understanding of earthquakes and tsunamis. The five-year agreement was witnessed by the Honourable Joe Oliver, Canadian Minister of Natural Resources, during his visit to Japan and will provide researchers opportunities to share scientific information on geodynamics. It will also allow for the exchange of personnel for collaborative projects, sharing of facilities and equipment including research vessels; and will facilitate work with industrial, academic and professional organizations in both Japan and Canada. The agreement could lead to improved earthquake and tsunami monitoring, which would help to ensure the safety and security of people in both Japan and Canada through the development of geodynamic models to better understand earthquakes. (September 18)

<http://www.nrcan.gc.ca/media-room/news-release/2012/6535>

2. Japanese S&T

2.1 Nobel Prize in Physiology or Medicine awarded to Dr. Shinya Yamanaka for iPS research

Dr. Shinya Yamanaka, Professor at Kyoto University, receives 2012 Nobel Prize in Physiology or Medicine jointly with Dr. John B. Gurdon for the discovery that mature cells can be reprogrammed to become pluripotent. Dr. Yamanaka, building on Dr. Gurdon's discovery that the specialization of cells is reversible, discovered in 2006 that mature cells in mice can be reprogrammed to become immature cells. With the introduction of a few genes Dr. Yamanaka determined it was possible to reprogram mature cells to become pluripotent cells; called induced pluripotent cells or iPS cells, these are immature cells that can develop into all types of cells in the body. The discovery of iPS cells, which can also be prepared from human cells, has led to significant progress in many areas of medicine. (October 8)

http://www.nobelprize.org/nobel_prizes/medicine/laureates/2012/press.html



2.2 The 9th STS forum held in Kyoto

The ninth Annual Meeting of the Science and Technology in Society forum (STS forum) was held on October 7th to 9th, in Kyoto and was well-attended by some 1,000 leaders in science and technology, business, media and policy from 96 countries, international organizations and regions. Attendees participated in discussions on the forum's themes of how to expand the "lights" and control the "shadows" of science and technology, and to promote innovation in solving the world's shared problems. Distinguished speakers from the private and public sectors, and researchers and policy-makers spoke on a wide range of current science and technology issues. The forum recognized the importance of science, technology and innovation in countering global environmental threats and in promoting growth and prosperity, and called for the necessary investments to be made in these, despite the current difficult economic and social conditions. (October 7-9)

http://www.stsforum.org/press/PDF/2012/DISTRIBUTION_EN_PressRelease_10-09-2012.pdf

2.3 The HTV-3, *KOUNOTORI3*, re-enters atmosphere

The successful re-entry of H-II Transfer Vehicle, *KOUNOTORI3* (HTV3) into the atmosphere was conducted on September 14th, marking the successful mission completion by the HTV3 which accomplished its main objective of shipping cargo to the International Space Station (ISS), spending a total of 56 days in space. *KOUNOTORI3* was launched on the Japan's H-2B rocket No. 3 by the Japan Aerospace Exploration Agency (JAXA) on July 21st from the Tanegashima Space Center and docked with the ISS on July 28th where it remained for 45 days while its external and internal cargo load of experimental hardware, supplies and food was transferred onto the ISS. The continuous *KOUNOTORI* launch opportunities, which provide data on operation techniques and scientific information aiding the development of future unmanned spacecraft, also demonstrate Japan's remarkable manufacturing technology of space vehicles and distinctive rendezvous flight techniques. (September 14)



http://www.jaxa.jp/press/2012/09/20120914_kounotori3_e.html

2.4 Search for element 113 by RIKEN researchers concluded at last



Associate Chief Scientist Kosuke Morita and his team of researchers from the RIKEN Nishina Center for Accelerator-based Science (RNC), the world's most powerful heavy ion physics facilities, successfully identified atomic element 113 in experiments conducted at the RIKEN Linear Accelerator Facility in Wako, Japan. On August 12th, using a custom-built gas-filled recoil ion separator with a position-sensitive semiconductor detector to identify reaction products, zinc ions travelling at 10% of the speed of light collided with a thin bismuth layer producing a very heavy ion followed by a chain of six consecutive alpha decays which were identified as products of an isotope of the 113th element. While Dr. Morita's team had previously detected the superheavy element 113 in experiments in 2004 and 2005, the most recent experiments detected the alpha decay chain of Dubnium decaying into lawrencium-258 (element 103), a well-known chain which provides unambiguous proof that element 113 is the origin of the chain; the chain finally decayed into mendelevium-254 (element 101). (September 27)

<http://www.riken.go.jp/eng/r-world/info/release/press/2012/120927/image/120927.pdf>

2.5 Kyoto University receives iPS cell patents

Kyoto University was recently granted four patents for induced pluripotent stem (iPS) cells technology, one in Japan and three in the United States. The patent granted in Japan relates to the basic technology for iPS cells, which were first successfully generated by the research group of Professor Shinya Yamanaka, Director of the Center for iPS Cell Research and Application (CiRA). One of the three patents granted in the US is related to technology developed by Yamanaka's group, while the remaining two are assigned to Kyoto University by U.S. biopharmaceutical firm with effect from January 27, 2011. Kyoto University previously obtained three Japanese patents, and three U.S. patents relating to basic iPS cell technology. (September 19)

<http://www.cira.kyoto-u.ac.jp/e/pressrelease/news/120919-101755.html>

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