

S&T Highlights

March 2010

NSF Tokyo Regional Office

[FIRST Awards Unveiled] CSTP (Council for S&T Policy) announced 30 projects awarded under the FIRST (Funding Program for World-Leading Innovative R&D on Science and Technology) program at its monthly meeting on March 9, 2010. FIRST was established in June 2009 with the economic stimulus package-2009 to support new world-class technologies. The fund was originally budgeted at ¥270 (~\$2.7 billion) over 5 years by the previous administration.



CSTP Monthly Meeting on March 9, 2010
Prime Minister (Center) and S&T Minister (Right)
Source: CSTP HP

The Hatoyama administration that came into power in September 2009 reduced the budget to ¥150 billion (~\$1.5 billion)/5 years, which was further divided into ¥100 billion (~\$1.0 billion) FIRST program and ¥50 billion (~\$0.5 billion) program for young and women scientists. The 30 awards ranged in size from the two largest awards, receiving ¥5 billion (~\$50 million) over 5 years, and the smallest, receiving ¥1.8 billion (~\$18 million) over 5 years. The largest awards were given to Dr. Shinya Yamanaka, Kyoto University, for iPS (induced pluripotent stem) cell research; and Dr. Akira Tonomura, Hitachi Ltd., for materials science research. [\[NSF Tokyo Office will soon release a report on FIRST.\]](#) (Summary of an article on the Cabinet Office HP)

[Bill to Reduce CO2 by 25%] The Cabinet approved a bill that provides the basic framework for Japanese Government Policy on Global Warming. The bill, expected to pass the present Diet, includes a reduction of GHG emission by 25 percent by 2020 from the base year of 1990; provision for relevant policies on the use of nuclear energy; establishment of a domestic GHG emission trading system within a year; regulation on a ceiling GHG emission amount for industries; and reduction of the GHG emission per cost unit. A detailed roadmap will be developed based on the bill. (Summary translation of an article in Nihon Keizai Newspaper – 3/12/10)

[Survey on Public Attitudes toward Science and Technology] The Cabinet Office announced the result of a survey of the public's interest in issues related to science and technology. The survey polled 3,000 adult Japanese from January 14-24, 2010. Of the respondents, 57.7 percent said that they do not have opportunities to satisfy their interest in and understanding of S&T-related issues; 63.0 percent said interested in S&T news; 86.7 percent said that it is important to develop S&T to compete globally; and 75 percent expected that the emerging social challenges such as environment and energy can be solved by S&T. In response to the question of where S&T can best contribute to the human kind, 75.7 percent said 'health,' followed by conservation of the global environment (65.2 percent). An impressive 87.9 percent believed that the humankind can realize a society that makes full use of natural resource and innovative technologies to meet the world energy needs. (Summary translation of an article in Nihon Keizai Newspaper – 3/14/10)

[A New Institute for iPS Cell Research] Kyoto University announced that it will launch a new research institute that focuses only on 'iPS (induced pluripotent stem) cell research. Dr. Shinya Yamanaka will be the Director of the Institute housed in a brand-new building on Kyoto University's Yoshida Campus. Research at the institute will cover the entire spectrum from basic to clinical applications. The current staff working in 18 groups in 4 departments is expected to expand to 200 in two years. The institute has more than ¥2 billion (~\$20 million) budget in JFY2010. Dr. Yamanaka's vision is to make it an international research institute and to promote clinical applications of iPS cell technologies through enhanced researcher exchanges and accelerated research advances. (Summary translation of an article in Nihon Keizai Newspaper – 3/6/10)



Crawling baby robot

Source: Asada LAB HP

[Baby Robot] Drs. Minoru Asada and Hiroshi Ishiguro, Osaka University, developed a baby robot that behaves just like human baby. The 50 cm-tall and 3.5 Kg-weight robot rolls over, crawls, stands in a crib, and walks while holding onto furniture, using about 90 vision, auditory, and tactile sensors.

The baby robot will help elucidate the mechanism of human cognition and learning. The project is funded by JST's (Japan S&T Agency) ERATO (Exploratory Research for Advanced Technology) program. (Summary translation of an article in Nihon Keizai Newspaper – 3/4/10)

[Esaki Diode] Dr. Leo Esaki, Nobel Laureate in Physics in 1973, recently tested the 'Esaki Diode' he had invented back in 1957, and found that it works almost as well as it did (with only 3.3 percent loss of efficiency) 50 years ago. The Esaki Diode uses a special phenomenon of electron tunneling. As it is different from the ordinary semiconductors, the effective life of Esaki Diode has been a concern. Dr. Esaki reported the test result on the Nature Magazine (March 4 issue). (Summary translation of an article in Nihon Keizai Newspaper - 3/4/10)

[Bio Fuels from *Euglena*] Nippon Oil Corporation and *Euglena* (a University of Tokyo's venture company), will jointly begin a mass production of bio fuels made from *Euglena*, 0.1 millimeter-long algae. *Euglena* (company) has already established technologies to mass culture *Euglena*. Oil from *Euglena* is to be used to fuel airplanes and buses. Advantages of *Euglena* oil include consistent supply of raw materials and no requirement for farm land. The cost of the product will be more expensive than the current fuel, but Nippon Corporation plans to offer the product at a reduced cost. (Summary translation of an article in Nihon Keizai Newspaper – 3/8/10)

[Bill Gates & Toshiba] An energy start-up (TerraPower) backed by Microsoft Corp. co-founder Bill Gates and Toshiba Corporation will jointly develop next-generation nuclear reactors (TWRs: traveling-wave reactors) that will enable 100 years of continuous operation on depleted uranium without refueling or removing spent fuel from the device. The new reactor that works with less construction and operational costs than the present ones is expected to be commercialized in 2010. (Summary translation of an article in Nihon Keizai Newspaper – 3/23/10)

[Pritzker Architecture Prize] Messrs. Kazuyo Sejima and Ryue Nishizawa will receive the Pritzker Architecture Prize that is considered to be the Nobel Prize in Architecture. They co-operate an architecture company, SANAA. They will receive the prize, including \$100,000 cash award, in New York on May 17, 2010. Ms. Sejima is the second woman recipient of the prize since it was established in 1979. (Summary translation of an article in Nihon Keizai Newspaper – 3/29/10)

Grants & Announcements

- JSPS solicits applications from US and European researchers for its **Short-term (from 1-12 months) Postdoctoral Fellowship** program. The application period is set for April 5-9, 2010 for research in Japan between August 2010 and March 2011; May 6-12, 2010 for research in Japan between September 2010 and March 2011; and August 2-6, 2010 for research in Japan between December 2010 and March 2011. The fellowship will provide round-trip airfare, monthly living allowance of ¥364,000 (~\$3,640) for Ph.D holders, or ¥200,000 (~\$2,000) for those who have not obtained Ph.D at the time of application, and a travel insurance for those who stay in Japan for more than 4 months. Applications should be submitted by the president of the Japanese host institution.
- JSPS solicits proposals (deadline: May 14, 2010) for **'Research Initiation Grants,'** as part of the Grant-in-Aid programs. This program represents a modified version of the previous "Support for Young Researchers." The modification makes it possible for formerly ineligible researchers eligible to apply, including those who were hired as researchers after April 1 of the previous year; who returned from foreign research institutions and joined Japanese research institutions; and who were on maternity leave and could not apply for the previous fall deadline.
- MEXT (Ministry of Education, S&T) solicits proposals (deadline: April 2, 2010) for **'Network for Low-Carbon Society'** program. Based on the fact that nanotechnology is essential to establish a low-carbon society, the program is to network 'green nanotechnologies,' merger of nanotechnology and environment & energy technologies. It is to establish hub and satellite centers in nanotechnology. A few successful hub centers will receive ¥ 1-3 billion (~\$10-30 million)/center/year; 8-10 successful satellite centers will receive ¥0.1-1 billion (~\$1-10 million)/center/year. The proposal should have a 5-year plan of which the first year (JFY2010) will be funded by MEXT and the rest four years to be funded by each institution.
- MEXT solicits proposals (deadline: April 23, 2010) for a new program, **'Climate Change Strategic Initiative.'** Total program budget for JFY2010 is ¥563 million (~\$5.63 million). The program lists three themes: 1. Advanced Down-scaling Technology; 2. Data Assimilation; and 3. Climate Change Adaptation Simulation. Four successful PIs under each theme (total 12 PIs) can cooperate and coordinate their research each other. The expected grant amount is up to

¥30 million (~\$300,000)/year for Theme 1; up to ¥65 million (~\$650,000)/year for Theme 2; and up to ¥ 40million (~\$400,000)/year for Theme 3. The research period for Themes 1-3 is 3-5 years.

- MEXT solicits proposals for its new 5-year program, '**Advanced Technology for Deep Sea Crust Movement Observation.**' Letters of intent are due March 29, 2010 and full proposals are due on March 23, 210. The JFY2010 budget for this program is ¥69 million (~\$690,000). The number of grantees is not set.
- JST (Japan Science and Technology Agency) solicits proposals (deadline: May 18, 2010) for **CREST** (Core Research for Evolutional Science and Technology) program in 11 research areas: Information Technology in Harmony with Humans; Solar Energy; Neuronal Circuit; Sustainable Use of Water; iPS; Optical Science; Nano-system; Nano-structure; CO₂ Emission Control; Immunology; and Exploration of Breakthrough by Combination of Mathematics and Other Academic Fields. Proposals for this 5-year program should be submitted by group. A successful group of researchers will receive ¥30-50 million (~\$300,000)/year for five years. Depending on the budget, 4-10 groups will be selected under each research area.
- JST solicits proposals (deadline: May 18, 2010) for **PRESTO** (Precursory Research for Embryonic Science and Technology) program in 10 research areas: Information Environment and Humans; Photoenergy Conversion Systems and Materials for the Next Generation Solar Cells; Chemical Conversion of Light Energy; Neuronal Circuit; Epigenetics; iPS; Innovative Use of Light and Materials/Life; Nano-systems and Emergent Functions; Decoding and Controlling Brain Information; and Synthesis of Knowledge for Information Oriented Society. The period for this individual research can be either 3 or 5 years. A successful individual researcher receives ¥30-40 million (~\$300,000-400,000)/3years or ¥50-100 million (~\$0.5-1 million)/5 years.
- JST solicits proposals (deadline: April 7, 2010) for **Development of Systems and Technology for Advanced Measurement and Analysis.** The program (established in JFY2004) is divided into four categories: (1) Element Technology: ¥50-100 million (~\$0.5-1.0 million)/project/3.5 years; (2) Development of Equipment: ¥200-500 million (~\$2-5 million)/project/2.5 years; (3) Software Development: ¥100-200 million (~\$1-2

million)/project/3.5 years; and (4) Prototype Test/Commercialization: ¥200 million (~\$2 million)/project/2.5 years. The total budget for this program is not made public.

[Kazuko Shinohara/NSF/Tokyo]