

On the occasion of the 20th anniversary of Advanced Science Research Center

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On behalf of all the members of the Advanced Science Research Center (ASRC), I would like to thank all of you for joining the Symposium to celebrate the 20th Anniversary of the ASRC.

The catastrophic earthquake on March 11 last year did make more than a little scar onto our Center. With domestic and international supports together with a concerted effort of members of the ASRC toward recovery, the ASRC has been restored by the beginning of this year. We are very much grateful that after having overcome through the tough year, such a great Symposium is now able to be held.

Japan Atomic Energy Agency (JAEA) is the comprehensive research organization which widely covers nuclear science and related science and technology. The ASRC was founded in April 1993 to lead to the future science and technology of atomic energy and to explore frontier of this field. In other words, the ASRC points to the future direction of JAEA.

When explaining a role of the ASRC, I always take the Einstein equation of $E=mc^2$ as an example. This equation indicates that energy (E) and mass (m) are equivalent, and energy can be figured out by multiplying mass by square speed of light. From this equation, technology to generate atomic energy was created. It is also used in GPS of automobiles, and the theory delivered from it is the starting point to explore the origin of the universe. Development of pure science contributes to a broad range of fields. I believe, without such scientific development, there would be no future of mankind. Seeing decades ahead, in the ASRC, we bring forward leading-edge researches on science and technology based on atomic energy.

A variety of remarkable research results have been achieved in the last twenty years in the ASRC, some of which have been blossomed in other divisions of JAEA. While currying the great achievements and traditions, the ASRC is now conducting eleven research projects at three research fields; namely, Advanced materials research, Frontier research on heavy element systems, and Radiation field effects. Most of them are unique in that they are performed using the large facilities of JAEA effectively.

In order to conduct the world-class research, it is essential to discuss thoroughly and, at the same time, to listen to diverse views. In the ASRC, we have, therefore, invited guest group leaders from the University of California, GSI Helmholtz Centre for Heavy Ion Research, Tohoku University and Tokyo Institute of Technology, and advisors from Argonne National Laboratory and the University of Tokyo. Ten distinguished scientists from outside JAEA have been appointed to the ASRC evaluation committee, and research projects are assessed at each phase. In addition, an on-going funding program, Reimei Research Program, has been promoted to an international collaboration research program since the 2010 fiscal year. "ASRC International Workshops" have been held to present results achieved through the collaboration. In the 2011 fiscal year, three workshops were held here in Tokai, and one in Grenoble in France, and 150 guests from overseas visited the ASRC throughout the year.

In the last fiscal year, in particular, owing to such collaborations, we were able to continue experiments, which could no longer be carried out at the damaged facilities of JAEA due to the earthquake, at facilities abroad.

The earthquake led to a major change in management of the ASRC, too. For the ultimate restoration of the nuclear accident at the Fukushima Daiichi Nuclear Power Plant, JAEA has set up the head quarter of Fukushima supports, and has been making a full use of research facilities and human resources of

JAEA for a restoration support and an environmental aid. The ASRC, in response to the mid-term plan of JAEA and the Government, has fully cooperated not only in technical contributions, such as analysis of contaminated water in the power plants, studies on decontamination of soil and water, but has also taken a part in measurements of contamination in the field, the temporary return home of residents from evacuation zone.

Opened up by the accident of Fukushima nuclear power plant, the mid-and long-term scheme on atomic energy is called for a review. For sustainable development of mankind and maintaining global environment, a solution to the energy problems and advancement of science and technology are essential. This is a primal mission of JAEA to work on the issue. The ASRC, taking the med-and long-term plan of JAEA, is aiming to present alternatives, and to search for a new science technology which could bear the future of JAEA.

Collaboration among groups

