

Preface

It is a great pleasure for us to publish the KURRI Progress Report 2009. This report contains all of the accomplishments of KURRI, which includes research and investigations performed under the “Joint use program” for Japanese universities during the fiscal year 2009 from April 2009 to March 2010.

In FY2009, that is the final year of the first 6-year mid-term program for KURRI, the fuel conversion procedure for the Kyoto University research Reactor (KUR) has been completed from the highly enriched uranium (HEU) of 93% to the low enriched uranium (LEU) of 20% for preparing its operation from 2010. Meanwhile, the Kyoto University Critical Assembly (KUCA) has been operated for 783 hours. In total, we accepted 2,906 man-day researchers and students for using research facilities and for attending scientific meetings held at KURRI. For the use of research reactors other than KUR, in addition, 36 man-day researchers have been sent to the research reactor HANARO in Korea Atomic Energy Research Institute (KAERI), in the framework of the “Project research” in the joint use program at KURRI based on the memorandum for collaboration. The results of these activities are given in this report.

In parallel with research and investigations performed under the joint use program, some special research projects have been performed at KURRI. One is the project on “Technology development for the Accelerator Driven Subcritical Reactor (ADSR) by using a Fixed Field Alternating Gradient (FFAG) accelerator”. The project has been started in FY2002 as a part of the MEXT program, and the world’s first ADSR experiment has been successfully conducted with the combination of the KUCA and the FFAG accelerator. The related studies including development of target materials are now being promoted. In another project, a proton cyclotron was installed for initiating clinical trial of the boron neutron capture therapy (BNCT), and preliminary experiments were started. It is noted that the progress of multidisciplinary nuclear science and technology including these two research areas is strongly supported by several academic societies.

Efficient utilization of nuclear power and radiation is expected to provide solutions to maintain, sustain and even to improve development of human society. With collaborative use of important research resources such as reactors and accelerators, our program’s objective in next 6-year mid-term program for KURRI is thus to establish a center of excellence to grow and to promote multidisciplinary nuclear science and technology, leading to improved quality of life for all. This program will accelerate accumulation of basic and fundamental knowledge necessary for safe and effective utilization of nuclear energy, including development of material science and the BNCT study. The objective is application for the benefit of society, as well as for human resource cultivation.

The high standing of the institute in research and related activities relies on the enthusiasm and dedication of all the participants. Details of their work and achievements during the year are given in the following pages. I am grateful to all of my colleagues who have taken time to prepare this report, and thank them for their continued cooperation. Also, I would like to express my sincere thanks for the continuous support from the national and local governments, scientific communities and residents in the neighborhood of KURRI.

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