I. 11. Training School on Nuclear and Particle Physics Experiments Using Accelerator Beams

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1st and 2nd “Training school on nuclear and particle physics experiments using accelerator beams” (SCHOOL) in the Support Program of KEK and Tohoku University were held at CYRIC from February 26th through March 2nd and December 23rd through December 27th in 2013. The purpose of this school is the support of the human resources development for the Japanese accelerator science by training undergraduates, who are interested in accelerator science such as the nuclear, elementary particle physics or the beam physics, and the experiments using the accelerator beam. The participating students came widely from the universities of the whole country, as listed in Table 1.

In SCHOOL, the francium (Fr), which is a radioactive element, was produced through the nuclear reaction with the $^{18}O^{5+}$ primary beam accelerated by an AVF cyclotron and ^{197}Au target, as $^{18}O + {}^{197}Au \rightarrow {}^{215-x}Fr + xn$. The students experienced the processes of the nuclear experiment using the accelerator through the measurement of the decay energy and the life time of the produced Fr nucleus by using the solid state detector (SSD). In addition to this online experiment, the offline experiment by using the americium sealed radioactive source was performed to understand the operating principles of the SSD. When the students toured CYRIC, they asked many questions with strong interests. At the end of SCHOOL, the students had the presentation and discussion of the training contents. Since the students were very active, the bright future of the Japanese accelerator science is expected.

The authors would like to thank the staff of CYRIC machine group. This SCHOOL will be held every year.

Table 1. Distribution of students for 1st and 2nd “Training school on nuclear and particle physics experiments using accelerator beams”.

University	Department	Number	
		1st school	2nd school
Nara Women’s University	Physics	1	0
Kanazawa University	Physics	1	0
Hiroshima University	Physics	1	0
Tohoku University	Medicine	1	0
	Physics	0	1
Saitama University	Physics	1	0
Ritsumeikan University	Physics	1	0
Waseda University	Physics	1	1
International Christian University	Physics	1	0
Rikkyo University	Physics	0	1
Tokyo Institute of Technology	Chemistry	0	1
Kyusyu University	Physics	0	1
Okayama University of Science	Physics	0	1
Tokyo University of Science	Physics	0	1