

I. 4. Fourth Training School on Nuclear and Particle Physics Experiments Using Accelerator Beams

Inoue T.^{1,2}, Sakemi Y.¹, Itoh M.¹, Dammalapati U.¹, Harada K.¹, Kawamura H.^{1,2}, Kato K.¹, Aoki T.¹, Uchiyama A.¹, Ito S.¹, Kaneda M.³, and Tamura H.²

¹*Frontier Research Institute for Interdisciplinary Science, Tohoku University*

²*Cyclotron and Radioisotope Center, Tohoku University*

³*Department of physics, Tohoku University*

The 4th “Training school on nuclear and particle physics experiments using accelerator beams” (SCHOOL) in the Support Program of KEK and Tohoku University was held at CYRIC from February 22nd through 26th, 2016. The purpose of SCHOOL is to support the human resources development of Japanese accelerator science by having undergraduates who are interested in accelerator science, such as nuclear elementary particle physics or beam physics, experiment using the accelerator beam. The six participating students came from five universities (Yokohama National University, the University of Electro-Communications, Osaka University, Yamagata University and Keio University).

In the SCHOOL, the students had two experiments. One was an online experiment using an AVF cyclotron, and the other was offline. In the online experiment, francium (Fr), which is a radioactive element, was produced through the nuclear fusion reaction with the $^{18}\text{O}^{5+}$ primary beam accelerated by the AVF cyclotron and ^{197}Au target, as $^{18}\text{O} + ^{197}\text{Au} \rightarrow ^{215-x}\text{Fr} + xn$. The students actually performed the nuclear experiment using the accelerator by measuring the decay energy and the life time of the produced Fr nucleus using the solid state detector (SSD). In the offline experiment by using the americium sealed radioactive source, the operating principle of the SSD was studied and the SSDs were calibrated to be used in the online experiment. At the end of the SCHOOL, the students presented and discussed the training contents. Since all students were very active and hard workers, a bright future in Japanese accelerator science is expected.

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