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First production test of slowed-down RI beam at RIBF

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RI beam factory at RIKEN provides an RI beam as a projectile fragments. Because the fragments are produced from an primary beam with 345 MeV/u, an energy of reaction-type experiments is usually higher than ~100 MeV/u. However, a low energy RI beam with 15 MeV/u is required for an investigation of the shell evolution via transfer reactions. The low energy RI beam also provides opportunities of a deep-inelastic reaction and fusion reaction.

In the present study, the low energy RI beam was produced by slowing down the projectile fragment with a momentum compression scheme proposed at the RNB8 conference [1]. The RI beam of ^{82}Ge was produced via the in-flight fission reaction of ^{238}U with 345 MeV/u. The momentum-compressed and momentum-achromatic beam was produced at the second stage of the fragment separator BigRIPS. The energy was slowed down to ~15 MeV/u using five energy degraders. The beam size of 11mm phi (sigma) was achieved. We will present the slowed-down scheme and results in this conference.

[1] T. Sumikama et al., 8th International Conference on Radioactive Nuclear Beams (RNB8), Grand Rapids, Michigan, USA, May 26-30 (2009).

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