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Status of the RFQ Cooler Buncher for Rare Isotope Experiments at RAON

The beamline of Isotope Separation On-Line (ISOL) system at RAON was constructed. The produced ions from the Target Ion Source (TIS) are cooled and bunched using the Radio Frequency Quadrupole Cooler Buncher (RFQ CB) to improve the charge breeding efficiency of the Electron Beam Ion Source (EBIS) charge breeder and the performance of the Multiple-Reflection Time-of-Flight Mass Spectrometer (MMS) and the Collinear Laser Spectroscopy (CLS). The RFQ CB can deliver up to $1E+8$ ions per bunch to the EBIS by cooling and bunching DC beam from the TIS. The beamline has been optimized using a stable ion beam such as Cs, Na, and Sn. As a result, $1e+8$ ions could be sent in a bunch with a length of several ten of microseconds. In the first half of this year, rare isotopes (RI) were produced using 70 MeV protons extracted from the cyclotron and a SiC target. Commissioning is currently in progress to send a small amount of RI to the MMS, CLS, and EBIS. This report will discuss the current status of the RFQ CB for the RI experiment.

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Yes

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