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Design and Preliminary Experimental Investigation of a RFQ Beam Cooler Demo

High resolution of mass separation is important to the radioactive isotopes on-line separation facilities. This specification often implies that energy desuperation and emittance of beams are small. A method by buffer gas collisions under Radio Frequency Quadrupole RFQ to improve beam quality is a feasible way for radioactive ion beams. Due to the requirements of RIB's high resolution mass separation, the investigations of RFQ beam cooling have been developed in China Institute of Atomic Energy. A RFQ beam cooler demo and test platform has been designed and established. And the preliminary investigations of the demo were carried out. After undergoing decelerated, captured by RFQ and reaccelerated, tens Nano amperes Kr⁺ beam was measured. In this paper the design of the RFQ beam cooler demo and setup of test platform are introduced. And then preliminary experimental investigation on the demo are presented.

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