

Development of a negative ion cooler at MALT

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Development of new isobaric separation techniques on accelerator mass spectrometry (AMS) is proceeding recently. One of the techniques is laser photodetachment. In this method, isobaric ions should be removed by selective neutralization using laser light [1]. For sufficient isobaric suppression, it is quite important to increase ion-laser interaction time. In order to gain enough reaction time, an ion cooler has been developed [2, 3].

We also developed an negative ion cooler at Mico Analysis Laboratory Tandem Accelerator, The University of Tolyo (MALT). Our apparatus consists of deceleration electrodes, six guide electrodes, radio-frequency quadrupole electrodes with gas, and re-acceleration electrodes (Fig.1).

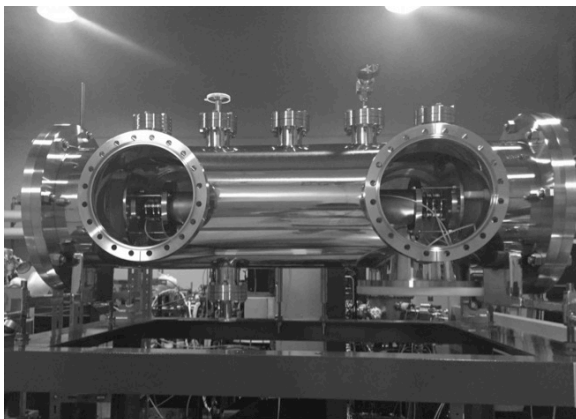


Figure 1: Picture of ion cooler at MALT

We will introduce this ion cooler into a new test bench beam line, which is constructed by an ion source, two bending magnets, and several instruments such as faraday cups. Some experimental results will be reported in this paper.

[1] Berkovits *et al.* (1989) *Nucl. Instr. Meth. A* **281**, 663. [2] Liu *et al.* (2002) *Nucl. Instr. Meth. B* **187**, 117-131. [3] Forstner *et al.* (2015) *Nucl. Instr. Meth. B* **361**, 217-221.