

A Cryogenic Current Measuring Device for the Low-Intensity Beam at the Storage Ring TARN II, I. KATAYAMA, S. ONO, T. TANABE, CNS, Univ. Of Tokyo; Y. ARAKAKI, K. CHIDA, T. WATANABE, KEK - In the storage ring TARN II, atomic physics experiments have been performed on molecular ions. One important result concerning physics is the absolute values of the cross sections. In order to determine the cross sections, accurate intensity measurements of ion beams are required without interfering with the circulating ion beams in the ring. A standard current measuring device in a circular accelerator is a DC-current transformer (DCCT), the sensitivity of which is about 1 micro-A. On the other hand, the intensity of molecular ion beams is mostly below the lowest measurable limit of the DCCT. In order to measure a low circulating beam current from 1 nA to 1 micro-A, we made a cryogenic current measuring device using a SQUID (Superconducting QUantum Interference Devices). This paper gives the design and performance of the device.