

**Design of Model Sector Magnet for the RIKEN Superconducting Ring Cyclotron,** S. FUJISHIMA, A. GOTO, K. IKEGAMI, T. KAWAGUCHI, J.W. KIM, T. KUBO, T. MITSUMOTO, H. OKUNO, Y. TANAKA, T. TOMINAKA, and Y. YANO, RIKEN - An RI beam factory based on the projectile fragmentation method has been proposed as an extension of the RIKEN accelerator research facility. We plan to build a six-sector superconducting ring cyclotron (SRC) to boost energies of heavy-ion beams up to 400 MeV/nucleon, which enable very efficient production of RI-beams. Here we report on the design of a model sector magnet for the SRC. It aims at achieving stably a magnetic field of 4.5 T that is required for the SRC. The scaling ratio of the model is about 1/2, but its main coil is larger than this ratio so that the goal field can be achieved by using a superconducting wire designed for the SRC. The maximum operation current and current density are 5000 A and 40 A/mm<sup>2</sup>, respectively, which are the same as the design values of the real sector magnet. The wire has been designed so that the coil can be cryogenically stable up to 5000 A. The required ampere-turn has been calculated to be 3.3 MA. The coil is cooled by the bath-cooling method that uses 4.5-K liq. He. The total weight of the model magnet is estimated to be about 120 tons. In the model magnet we plan to install a superconducting magnetic inflection channel as well as a superconducting trim coil to confirm their designs.