

**Design of Double Storage Rings at MUSES,**  
N. INABE, RIKEN and T. KATAYAMA, INS - The Double Storage Rings (DSR) plays a role to perform experiments of collision or merging of radioactive beams with electron beams, ion beams and X-rays produced from an undulator. The DSR has several operation modes so as to store several kinds of particles with different energies. One mode is to store electrons of low emittance ( $\sim 10\pi$  nmmrad at 2.5 GeV) for the high brilliant X-ray production. For that purpose, a unit cell is composed with double bend achromat (DBA) system and then the DSR has a rather long circumference ( $\sim 259$  m). The second mode is to store electrons with rather large emittance ( $\sim 1 \pi$  mmrad at 1 GeV) that collide with ions. In this mode, dispersion in an arc is large by abandoning the DBA system. The DSR has two long straight sections with dispersion free for all modes. One section is for electron cooling for ions. Another is for the interaction point of collisions and merging experiment. At the colliding point  $\beta$  value is 0.6 m. An undulator to irradiate X-rays will be installed at this long straight section. Study of dynamic aperture with chromaticity correction will be presented.