

# **RNB and Cooler Storage Ring Facilities in Lanzhou**

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The Radioactive Beam Line in Lanzhou (RIBLL1) at the HIRFL, which is used for projectile fragment separation and operated in 1997, is introduced. Large scattering chamber, neutron ball and four segmented clover  $\gamma$ -detectors were developed in recent years and have been used for the researches of exotic nuclear structure. The RIBLL2 at the Cooler Storage Ring is installed and ready for the test experiment. The large acceptance dipole magnet for tracking and identifying the secondary reaction products was completed. The neutron wall detector, Time of Flight wall detectors for particle identification and particle tracking gas detectors at the external target setup are still under construction. The first experiment will be performed before the end of this year.

The CSR is under commissioning. With the bumping and ramping+bumping injection, the 1/e beam life time up to 170s in the CSR main ring was observed from the Schottky probe by using a frequency spectrum analyzer. The longitudinal momentum of the stored beam was measured. The ramping tests in the range from 7 MeV/u to 35 MeV/u with  $C^{4+}$  ions for the dipole magnets, quadrupole magnets and RF in the CSRm were made successfully. The Schottky probe and the electron cooler at the experimental ring for the mass measurement have been installed and tested. The hydrogen internal gas target was operated without beam and its target density achieved  $1.75 \times 10^{13}$  atoms/cm<sup>3</sup>.