Radioactive ion beams at Louvain-la-Neuve

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Low- en medium energy radioactive ion beams are produced at the Radioactive Ion Beam facility of Louvain-la-Neuve, Belgium.
At the LISOL on-line isotope separator, 50 keV 1^+ ion beams of neutron-rich isotopes along the Z=28 closed proton shell and neutron-deficient Rh and Ru isotopes close to the N=Z line are produced using resonant laser ionization [1,2]. The basic principles and performances of the laser ion source, and results from decay studies will be presented [3,4].
Post-accelerated beams with energies ranging from about 0.2 to 5 MeV/u are produced by coupling two cyclotrons: CYCLONE30 (protons: 30 MeV) with the existing CYCLONE110 or with the new CYCLONE44 accelerator [5]. Recent target development programs have allowed a significant increase in the intensity of the ^{6}He, ^{18}Ne and ^{15}O beams. These beams are used in experiments of astrophysical as well as nuclear physics interest (see e.g. [6]). An update of the performances of the facility together with results from some selected examples of recent experiments using the post-accelerated radioactive ion beams will be given .

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[4] W. Mueller et al., Phys. Rev. Lett. **83** (1999) 121
[5] http://www.cyc.ucl.ac.be/
[6] R. Raabe et al., Phys. Lett. **B458** (1999) 1