

Rare Isotope Beam Facility at the TAMU Cyclotron Institute (Project T-REX)

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Current status of the Texas A&M University Cyclotron Institute Rare Isotope Accelerator complex (project T-REX) will be presented, where two different approaches for production of RI's have been implemented.

First approach involves using high intensity primary beams with energies up to 25 MeV/A from K150 cyclotron to produce RI's in deep inelastic, transfer and fragmentation reactions. Products of interactions than will be separated by superconducting solenoid and delivered to the large gas catcher developed at the Argonne National Lab [1]. After the gas catcher, with the help of branching Multi-RFQ system, low energy secondary RI's can be delivered to the TAMU Penning Trap [2] or to the charge breeding ECR for farther reacceleration in K500 cyclotron.

With the second approach, up to 40 MeV proton beam with at least 10 μ A intensity will bombard light to heavy targets yielding fusion-evaporation products in A(p,xn)B type reactions. Proton induced U fission fragments will also be a source of rear isotopes. For collection of these types of rare isotopes small ion guide will be used, similar to the ion guide originally developed at the Cyclotron lab at the University of Jyväskylä in Finland (JYFL) [3].

Project is entering in its final stage and should be completed in 2012.

References

- [1] G. Savard, Journal of Physics: Conference Series 312 (2011) 052004, and references therein
- [2] M. Mehlman, D. Melconian, P.D. Shidling, Proceedings from CIPANP 2012, arXiv:1208.4078 [nucl-ex]
- [3] P. Dendooven, Nuclear Instruments and Methods, B 126, 182 (1997)