

DNP16-2016-000427

E

Abstract for an Invited Paper
for the DNP16 Meeting of
the American Physical Society

Status of the Cyclotron Institute Upgrade Project¹

DAN MELCONIAN, Cyclotron Institute, Texas AM University

The Texas A&M University Re-accelerated EXotics (T-REX) project, an upgrade to the Cyclotron Institute, will provide high-quality re-accelerated secondary beams of a unique energy range and the ability to provide primary beams to two experiments concurrently. The upgrade is nearing completion of its three major tasks: re-commissioning of the existing K150 cyclotron; construction of light- and heavy-ion guide transport systems; and charge-boosting the K150 RIB for re-acceleration using the K500 cyclotron.

The light-ion guide transport system will utilize the high intensity ($\geq 10 \mu\text{A}$) proton beam from the K150 to produce rare ions via fusion-evaporation reactions or proton-induced fission fragments. These ions will be transported to an ECR charge breeder prior to injection in the K500. The heavy-ion guide will use deep inelastic, transfer and fragmentation reactions using the up to 25 MeV/u primary beams from the K150. The products will be separated by a superconducting solenoid and collected in a large gas-catcher, after which a multi-RFQ system will transport the RIB to any of: the charge-breeder and K500; the TAMU Penning Trap beamline; or an MR-TOF for beam analysis.

The status of the T-REX upgrade and an overview of its capabilities will be presented

¹Supported by DOE grant number DE-FG03-93ER40773 and the Robert A. Welch Foundation grant number H-A-0098