

Abstract Submitted  
for the TSF10 Meeting of  
The American Physical Society

**Acceleration of  $H^-$  ions for the Cyclotron Institute Upgrade Project** JUAN OLVERA, Angelo State University, HENRY CLARK, Texas A&M University — The Cyclotron Institute at Texas A&M University is undergoing an upgrade that will allow for the production of radioactive ions for nuclear physics experiments. These ions will be produced with one of two ion guides, then collected, charge boosted and reaccelerated in the K500 cyclotron. The first radioactive ion beam for the project will be  $^{27}\text{Si}$  ( $T_{1/2}=4.16\text{s}$ ) at 15 MeV/u and will be produced through the reaction  $^{27}\text{Al}(p,n)^{27}\text{Si}$  with 30 MeV protons. The recently recommissioned K150 cyclotron will accelerate the proton beams to intensity as high as 20  $\mu\text{A}$  in order to produce sufficient amounts of radioactive ions. Rather than using an electrostatic deflector to extract the proton beam from the cyclotron,  $H^-$  ions will be introduced into the cyclotron, accelerated to 30 MeV and then stripped to protons with a thin carbon foil at extraction. First tests show the extraction efficiency to be nearly 100% and that the technique greatly reduces interior activation of the cyclotron and problems from secondary radiation. The  $H^-$  ion source, injection scheme and results from first tests will be presented.

Charles Allen  
Angelo State University

Date submitted: 23 Sep 2010

Electronic form version 1.4