

Abstract Submitted
for the APR05 Meeting of
The American Physical Society

Development of Polarized Solid Targets for Spectroscopic Studies with Radioactive Ion Beams. J.P. URREGO-BLANCO, C.R. BINGHAM, University of Tennessee, Oak Ridge National Laboratory, A. GALINDO-URIBARRI, Oak Ridge National Laboratory, B. VAN DEN BRANDT, P. HAUTLE, J.A. KONTER, Paul Scherrer Institute, UTK-ORNL-PSI COLLABORATION — Exciting new findings with radioactive ion beams (RIBs) in nuclear spectroscopy have resulted in a growing interest in this field. In order to fully exploit the potential of RIBs it is necessary to develop appropriate experimental tools. We are investigating the possibility of introducing polarization observables in spectroscopic studies with RIBs, at energies around the Coulomb barrier, through polystyrene targets of polarized protons and deuterons in the thickness range between 20 and 100 μm . The operation of such target systems requires a cooling scheme where the target is situated in the isolation vacuum of a cryostat in open connection to the vacuum of the beamline. This can be achieved by using two parallel polarized foils mounted on a copper tube, serving also as the NMR coil (for sampling the polarization), to form together a closed volume. Cooling of the foils is then achieved by a liquid helium bath (^4He or ^3He) via the copper tube, and subsequently via a superfluid ^4He film that can be added through the hollow NMR coil. The first tests of this proposed geometry are discussed and a status of the project is delivered.

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Date submitted: 18 Jan 2005

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