We report new measurements for the cross sections $O(p,x)^{10}Be$, $C(p,x)^{10}Be$, $Si(p,x)^{10}Be$, $Mg(p,x)^{10}Be$, $Al(p,x)^{10}Be$, $Si(p,x)^{26}Al$ and $Mg(p,x)^{26}Al$. These values and values for the $O(p,x)^{10}Be$ cross section reported before (Sisterson *et al.* 1992), will be compared to those in the literature and implications for solar proton fluxes over the time period characterized by the radionuclides ^{10}Be and ^{26}Al considered.

REFERENCES

Bodemann, R. *et al.* 1993 *Nuclear Instruments and Methods in Physics Research* B82: 9.
Reedy, R. C. and Marti, K. 1991 *The Sun in Time.* Tucson, University of Arizona Press: 990 p.
Sisterson, J. M. *et al.* 1992 *Lunar Planet. Sci.* 23: 1305.
____1994 *Nuclear Instruments and Methods Physical Research* B92: 510.
Southon, J. R. *et al.* 1990 *Nuclear Instruments and Methods in Physics Research* B52: 301.

[1]Harvard Cyclotron Laboratory, Harvard University, Cambridge, Massachusetts, USA
[2]Nuclear Science Facility, San Jose State University, San Jose, California, USA
[3]Lawrence Livermore National Laboratory, Livermore, California, USA
[4]Crocker Nuclear Laboratory, University of California, Davis, California, USA
[5]TRIUMF, University of British Columbia, Vancouver British Columbia, Canada
[6]Los Alamos National Laboratory, Group NIS-2, MS D436, Los Alamos, New Mexico, USA

THE ACTINIDES MEASUREMENT PROGRAM AT ANTARES: INITIAL TESTING OF THE NEW HIGH ENERGY, SPHERICAL ELECTROSTATIC ENERGY ANALYZER

A. M. SMITH, D. FINK, M. A. C. HOTCHKIS, G. E. JACOBSEN, E. M. LAWSON, C. TUNIZ

Australian Nuclear Science and Technology Organisation, Menai, Australia

and

D. ELMORE

PRIME Lab, Department of Physics, Purdue University, West Lafayette, Indiana 47907 USA

A major goal at ANTARES is to develop a program for measuring actinides with AMS. We plan to develop techniques for detecting rare radionuclides such as ^{236}U, ^{229}Th, ^{230}Th, and ^{244}Pu at natural levels, utilizing a purpose-built beam line. In addition, we plan to investigate the advantages of AMS for measuring isotopic ratios for major isotopes at low concentrations directly in the original matrix.

The "actinides beamline" will be constructed from all new components, using electrostatic lenses for mass independent focusing. Following the ideas of Purser (in press), an electrostatic quadrupole doublet immediately following the accelerator will focus the beam at a gas post stripper, where the second stripping to high charge states will allow us to 1) bend high masses at higher energies with an affordable magnet, and 2) reject molecular fragments having similar m/q. A consequence of this approach is that the electrostatic quadrupole will have to be capable of focusing charge state 1+ ions at energies up to 16 MeV. Following the post stripper, another electrostatic doublet will transport the beam through the existing analyzing magnet to the object of a 90° spherical electrostatic analyzer (ESA). Following the ESA will be a new analyzing magnet with resolving power similar to the ESA which will permit separation of ions that enter the accelerator as hydrides.

As the first step in the construction of this beamline, the 90° electrostatic analyzer has been delivered to ANTARES and is undergoing testing. This unit was manufactured by DanFysik (Denmark) and has a mean radius of 2.5 m with a plate separation of 25 mm. The plates have a spherical geom-