

Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

A Quadrupole Band-Pass Filter for LANSCE protons¹ STEPHEN WENDER, Los Alamos National Lab, R.J. PETERSON, U. of Colorado, JONATHON MORROW, University of Colorado — Neutrons are produced for many purposes at the LANSCE facility by 800 MeV protons into a thick tungsten target. The reactions also yield a continuum of protons, emerging at energies up to about 700 MeV; these protons are currently absorbed to allow neutron experiments. We have designed a quadrupole doublet band-pass filter to focus a narrow range of proton energies onto small samples, for instance the size of electronic circuit elements. Wrong proton energies are spread over a wider area and diluted. One may thus irradiate such small samples with protons from about 50 to 700 MeV by adjusting the quadrupole current. For a typical example with an existing doublet, a one cm diameter sample could receive protons at 470 MeV with 38 MeV FWHM energy resolution at a flux of 1.9×10^7 protons per second within that energy band, using the 30 degree port of the WNR facility. The flux of protons below 440 MeV or above 530 MeV is reduced by a factor of ten or more. Since the produced range of proton energies is similar to that of protons above the atmosphere, such a band-pass system would be of great use to study proton-induced processes in the components of orbiting systems.

¹Supported in part by the USDOE.

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Date submitted: 01 Jul 2010

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