

Abstract Submitted
for the APR07 Meeting of
The American Physical Society

Imaging 2-20 MeV solar neutrons in the inner heliosphere with the FNIT detector ULISSE BRAVAR, University of Nebraska - Omaha, PAUL BRUILLARD, University of New Hampshire, ERWIN FLUECKIGER, University of Bern, ALEC MACKINNON, University of Glasgow, JOHN MACRI, MARK MCCONNELL, AMARESH MOTAMARRI, University of New Hampshire, MICHAEL MOSER, University of Bern, JAMES RYAN, RICHARD WOOLF, University of New Hampshire — The Fast Neutron Imaging Telescope (FNIT), a neutron detector with imaging and energy measurement capabilities sensitive to neutrons in the 2-20 MeV energy range, is specifically conceived as a candidate instrument for the Solar Sentinels program. Different design concepts have been explored to optimize the detection capabilities for solar-flare neutrons in the inner heliosphere. The detection principle is based on multiple elastic neutron-proton scatterings in organic scintillators. By measuring the scattering coordinates and determining the energy of recoil protons and the momentum of scattered neutrons, the energy spectrum and incident direction of primary neutrons can be reconstructed. We present the results of recent Monte Carlo and laboratory efforts and describe the performance of the most advanced FNIT prototype design, structured around liquid scintillator detectors for neutron identification.

Ulisse Bravar
University of Nebraska - Omaha

Date submitted: 12 Jan 2007

Electronic form version 1.4