

GEANT MONTE CARLO SIMULATION OF THE SONTRAC DETECTOR

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The Solar Neutron Tracking (SONTRAC) telescope is designed to measure 20-150 MeV neutrons produced in solar flares. The SONTRAC detector consists of a block of scintillating fibers stacked in orthogonal layers and viewed by image intensified CCD cameras. Neutrons are detected through single or double neutron-proton elastic scatters in the scintillating fiber block. Neutron energies and directions of incidences are deduced from stereoscopic images of the scintillation tracks of the recoil protons. We have done Geant3 and Geant4 simulations of the SONTRAC detector. We compare our simulation results with calibration data of the SONTRAC scientific model where available. The simulated neutron detection efficiency, energy resolution and angular resolution are presented.