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Determining Source Directionality from a Scattering Based Neutron Detector System STEPHAN YOUNG, CORY HOSHOR, JAMES CURRIE, Univ of Missouri - Kansas City, TOM OAKES, Nuclear Science and Engineering Institute, Univ of Missouri - Columbia, JOSEPH CROW, PAUL SCOTT, Univ of Missouri - Kansas City, WILLIAM MILLER, Missouri University Research Reactor, ANTHONY CARUSO, Univ of Missouri - Kansas City — Three-dimensional directional resolve of neutrons over a wide energy range has proven to be a grand challenge. Various attempts to solve the problem, including neutron cameras and proton recoil based detectors have been met with limited success, with costs in efficiency as well as dimensional and field of view restrictions. To achieve true three dimensional directional resolution, empirical data and Monte Carlo N-Particle Transport Code (MCNP) modeling were used to explore response of a volumetrically sensitive scattering based system to a Cf source of varying angular orientation, then compared through three dimensional cross correlation analysis.

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