Abstract Submitted
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**An Optically Segmented Neutron Scatter Camera for Neutron Imaging Applications**[1] EVAN ADAMEK, Univ of Hawaii, SVSC COLLABORATION — The Single Volume Scatter Camera (SVSC) Collaboration is a multi-institution effort led by Sandia National Laboratories to develop portable neutron imaging systems for a variety of applications in nuclear non-proliferation and arms control. The SVSC project seeks to improve on existing state-of-the-art neutron emission imaging systems by improving the geometrical efficiency through the reconstruction of multiple MeV-scale neutron scatters within a single volume. Among several simultaneous efforts with this concept, the optically segmented approach utilizes an array of scintillating bars to detect a pair of consecutive neutron scatters. The position and energy of the scatters can be reconstructed through the pulse timing and energy in the photodetectors at both ends of each bar. Systematic concerns regarding the electronic and optical crosstalk, optical coupling, and reflective wrapping for the scintillator bars have been explored and efforts to characterize and mitigate these effects are ongoing. Results for the current and next generation prototypes will be discussed.

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