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Novel Multidimensional Cross-Correlation Data Comparison Techniques for Spectroscopic Discernment in a Volumetrically Sensitive, Moderating Type Neutron Spectrometer CORY HOSHOR, STEPHAN YOUNG, BRENT ROGERS, JAMES CURRIE, Department of Physics, University of Missouri - Kansas City, THOMAS OAKES, Nuclear Science and Engineering Institute, University of Missouri - Columbia, PAUL SCOTT, Department of Physics, University of Missouri - Kansas City, WILLIAM MILLER, Nuclear Science and Engineering Institute, University of Missouri - Columbia, ANTHONY CARUSO, Department of Physics, University of Missouri - Kansas City — A novel application of the Pearson Cross-Correlation to neutron spectral discernment in a moderating type neutron spectrometer is introduced. This cross-correlation analysis will be applied to spectral response data collected through both MCNP simulation and empirical measurement by the volumetrically sensitive spectrometer for comparison in 1, 2, and 3 spatial dimensions. The spectroscopic analysis methods discussed will be demonstrated to discern various common spectral and monoenergetic neutron sources.

Cory Hoshor
Department of Physics, University of Missouri - Kansas City

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