Dear Editor,

Enclosed is a new research paper titled “Semi-analytic Benchmark for Multi-group Free-gas Legendre Moments and the Application of Gauss quadrature in Generating Thermal Scattering Legendre Moments”. In this work we present benchmark solutions for thermal scattering Legendre moments up to order 5. We then compare a popular cross-section generation code, NJOY, and our own methods to these benchmarks. Our results show that numerical error in cross-section generation can be a source of uncertainty for transport calculations. This is an important result given the importance of uncertainty quantification and sensitivity analysis in nuclear engineering. Our benchmarks can also serve as a test for future cross-section processing codes.

Sincerely,

Ryan McClarren