Rejection-based sampling of inelastic neutron scattering

Distributions of inelastically scattered neutrons can be quantum dynamically described by a scattering kernel. We present an accurate and computationally efficient rejection method for sampling a given scattering kernel of any isotropic material. The proposed method produces continuous neutron energy and angular distributions, typically using just a single interpolation per sampling. We benchmark the results of this method against those from accurate analytical models and one of the major neutron transport codes. We also show the results of applying this method to the conventional discrete double differential cross sections.
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