

Research on Machine Learning Methods for Nuclear Reaction Cross Section Data of Structural Materials

Wednesday 18 December 2024 09:00 (1 hour)

The field of neutron induced nuclear reaction data has a rich history and well-established methodologies. However, it is often observed that existing models fail to accurately capture the drastic variations in experimental measurements corresponding to specific neutron energies, and for isotopes lacking measurement data, the uncertainty in theoretical models is substantial. My report endeavors to address these challenges through the application of two machine learning techniques. Specifically, it includes utilizing Bayesian Networks to analyze experimental data in the unresolved resonance region (URR) and fast neutron energy range for Fe-56, and Neural Networks for systematically learning neutron capture cross sections.

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Session Classification: Evaluation Methodology