

Kuang's Semi-Classical Formalism for Calculating Electron Capture Cross Sections: A Space- Physics Application

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Accurate estimates of electroncapture cross sections at energies relevant to the modeling of the transport, acceleration, and interaction of energetic neutral atoms (ENA) in space (\sim few MeV per nucleon) and especially for multi-electron ions must rely on detailed, but computationally expensive, quantum-mechanical description of the collision process. Kuang's semi-classical approach is an elegant and efficient way to arrive at these estimates. Motivated by ENA modeling efforts for space applications, we shall briefly present this approach along with sample applications and report on current progress.

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