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## A Novel Approach for the Intranuclear Cascade

Traditional intranuclear cascades assume point like interactions which neglects the fact that the nuclear force has a finite interaction range. In this new cascade, we use Quantum Monte Carlo nuclear configurations, along with a model for nucleon wavepacket overlap to incorporate more quantum mechanical effects into the cascade. We demonstrate how this approach correctly reproduces the mean-free path, can be evolved using constant time steps, and reproduces the proton-Carbon reaction cross-section. Additionally, we vary the parameters of the new cascade model as a means to estimate the uncertainty associated with our calculation.

### Mini-abstract

A novel cascade including QMC configurations and a model for nucleon wavepacket overlap.

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