Importance truncation in the No-Core Shell Model\textsuperscript{1} MICHAEL KRUSE, University of Arizona, PETR NAVRATIL, Lawrence Livermore National Laboratory, BRUCE BARRETT, University of Arizona — The No-Core Shell Model is an ab-initio technique, capable of calculating observable quantities of light nuclei ($A \leq 12$) very accurately. However, for heavier nuclei, the computational requirements become unfeasible. The problem lies in the massive size of the basis space employed. Importance truncation allows us to make a good a priori guess of which basis states might be relevant for certain observables. We are thus able to dramatically reduce the size of the required basis, opening up the possibility to perform structure calculations of heavier nuclei and also astrophysical reactions.

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