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Improving the In-Medium Similarity Renormalization Group via approximate inclusion of three-body effects TITUS MORRIS, SCOTT BOGNER, Michigan State University — The In-Medium Similarity Renormalization Group (IM-SRG) has been applied successfully not only to several closed shell finite nuclei, but has recently been used to produce effective shell model interactions that are competitive with phenomenological interactions in the SD shell. A recent alternative method for solving of the IM-SRG equations, called the Magnus expansion, not only provides a computationally feasible route to producing observables, but also allows for approximate handling of induced three-body forces. Promising results for several systems, including finite nuclei, will be presented and discussed.

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