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A weak entanglement approximation for nuclear structure

Content

The configuration-interaction method is a useful and flexible approach for nuclear structure, including excited states, but the exponential growth of the basis limits its application. Drawing upon ideas from quantum information theory, one finds that the proton and neutron partitions of the wave function is only weakly entangled. This leads to a novel approximation which allows one to approach calculations much larger than previously tractable. I will lay out the basic ideas and discuss the latest results.

Primary author: JOHNSON, Calvin (San Diego State University)

Presenter: JOHNSON, Calvin (San Diego State University)

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