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# Simulations of atomic nuclei on a digital quantum computer

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We present a variational algorithm to solve ground states of atomic nuclei within the nuclear shell model. The strategy is based on the implementation of ADAPT-VQE, an adaptive version of the variational quantum eigensolver algorithm, on a digital quantum computer. Exact ground energies are found up to medium-mass nuclei by implementing and simulating ADAPT-VQE on quantum circuits using the QIBO simulator and HPC resources. We also discuss the main challenges the algorithm faces on its implementation to heavier nuclei.

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