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Density Matrix Renormalization Group algorithm on intersecting chains HAIHUI GUO, STEVEN WHITE, University of California, Irvine — Systems of intersecting chains are interesting both from a fundamental viewpoint and because of their potential use in nanoscale devices. Here, we will introduce a new density matrix renormalization group algorithm to perform calculations on intersecting chains systems. The new DMRG algorithm greatly reduces the number of states kept per block to roughly $\sqrt{m}$ compared with the alternative "non-local" approach. We present results on 3-chain Heisenberg $S = 1$ system with two geometries, one with a single site in the center of junction, the other with three sites in the center of junction.

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