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A Renormalization Group for Treating 2D Coupled Arrays of Continuum 1D Systems ROBERT KONIK, YURY ADAMOV, Brookhaven National Laboratory — We study the spectrum of two dimensional coupled arrays of continuum one-dimensional systems by wedding a density matrix renormalization group (DMRG) procedure to a renormalization group improved truncated spectrum approach. To illustrate the methodology we study the spectrum of large arrays of coupled quantum Ising chains. We demonstrate explicitly that the method can treat the various regimes of chains, in particular the three dimensional Ising ordering transition the chains undergo as a function of interchain coupling. We argue that the methodology's success is based on finite size corrections being exponentially small which in turn allows the block DMRG entanglement entropy to be kept to a minimum.

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