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Real-space renormalization group methods and the prospect of observing conformal Calabrese-Cardy scaling JUDAH UNMUTH-YOCKEY, University of Iowa, JIN ZHANG, University of California Riverside, PHILIPP PREISS, Physikalisches Institut, LI-PING YANG, Chongqing University, SHAN-WEN TSAI, University of California Riverside, YANNICK MEURICE, University of Iowa — Over the past few decades, real-space renormalization group methods, implementable numerically, have contributed greatly to understanding the phase structure of lattice models in both condensed matter physics and lattice gauge theory. Using two of these methods, the tensor renormalization group and the density matrix renormalization group, we consider the possibility of experimentally observing the conformal Calabrese-Cardy scaling, and measuring the conformal charge in the superfluid phase of the Bose-Hubbard model in one spatial dimension. We suggest using existing experimental methods to measure the quantum purity, however our approach is unique in that the ground state of our proposed experimental set-up is adiabatically prepared at relatively small J/U and at *half-filling*.

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