Chaos Threshold and Failure of Chirikov's Criteria in Mean Field Bose-Hubbard Model AMY CASSIDY, University of Southern California, University of Massachusetts Boston, VANJA DUNJKO, MAXIM OLSHANII, University of Massachusetts Boston — We calculate the threshold for chaos in the one-dimensional mean-field Bose-Hubbard model. The threshold is found to depend on two parameters, the nonlinear coupling strength and total energy per particle, both of which survive in the thermodynamic limit [A.C. Cassidy, D. Mason, V. Dunjko, M. Olshanii, Phys. Rev. Lett. 102, 025302 (2009)]. The dependence on these parameters contradicts the predictions obtained by Chirkov's criterion of overlapping resonances. We study the influence of the conserved quantities of the nearby, fully integrable model of Ablowitz and Ladik.

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