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Extended nonergodic states in disordered many-body quantum systems[1] E. JONATHAN TORRES-HERRERA, Instituto de Física, Benemérita Universidad Autónoma de Puebla, LEA SANTOS, Department of Physics, Yeshiva University — We present results about the static and dynamical properties of a finite one-dimensional system with onsite random disorder. They support the existence of extended nonergodic states in an intermediate region between the chaotic and the many-body localized phases. We show that the long-time dynamics is particularly sensitive to changes in the spectrum and in the structures of the eigenstates. The study of the evolution of the survival probability, Shannon information entropy, and von Neumann entanglement entropy enables the distinction between the three regions. The survival probability reveals details about the system that the entropies do not seem able to capture.

[1]VIEP-BUAP, PRODEP-SEP

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