

Abstrakt: In this work, we will introduce the concept of quantum scarring. Quantum scarring refers to the states inside the chaotic parts of spectra, which significantly differ from predictions for chaotic states. In this work, we will focus on Quantum Many-Body Scars (QMBS), which deviate from the Eigenvector Thermalization Hypothesis (ETH) predictions. First, we will introduce the ETH and several ways in which the QMBS deviate from it; periodic revivals of non-eigenstate QMBS, anomalously low values of entanglement entropy, and localization of Husimi function in the classical limit. We will apply these methods to detect and study QMBS on coupled Lipkin models.