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Entanglement Hamiltonians for quantum spin chains¹ RONNY THOMALE, Princeton University, STEPHAN RACHEL, Yale University, DANIEL AROVAS, UC San Diego, B. ANDREI BERNEVIG, Princeton University — We report on our analysis of entanglement phenomena in gapped and gapless quantum spin chains. In particular we discuss criteria of correspondence between entanglement spectra and Hamiltonian spectra with respect to symmetries, spectral gaps, and eigenstate properties. We find that the structure of the entanglement Hamiltonian associated with the ground state is helpful to discover various spectral properties of the full system.

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