



CONDENSED MATTER THEORY SEMINAR

Exact many-body quantum scar states with topological properties in dimensions 1, 2, and 3

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Abstract:

We provide a general construction of exact excited states in a class of non-integrable conserved quantum many-body Hamiltonians. These states have area law entanglement entropy, while they are spectrally embedded in states with volume law scaling. Our construction applies to models in arbitrary dimensions, and we exemplify it for scar states with properties usually associated to gapped ground states of symmetry protected topological phases or topologically ordered phases of matter, including the respective degeneracies.