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Exact Excited States of the 1D AKLT Model SANJAY MOUDGALYA, Princeton University, NICOLAS REGNAULT, Laboratoire Pierre Aigrain, B. ANDREI BERNEVIG, Princeton University — We analytically obtain an infinite series of exact excited states for the AKLT spin chain, a non-integrable model. These states can be interpreted as quasiparticles on the ground state or the ferromagnetic state and this is clear when written in terms of dimers. Some of these states are in the middle of the full energy spectrum. We compute the entanglement spectra of these states in both zero and finite energy density regimes, with implications to eigenstate thermalization.

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