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How to Compute Nonperturbative Scattering Amplitudes

Monday 16 January 2023 10:15 (1 hour)

I will present a nonperturbative recipe for directly computing the S-matrix in strongly-coupled QFTs. The method makes use of spectral data obtained in a Hamiltonian framework and can be applied to a wide range of theories, including potentially QCD. After discussing the general approach, I will demonstrate its application to the specific example of the 2+1d O(N) model at large N, using energy eigenstates computed with Hamiltonian truncation to reproduce the full 2-to-2 scattering amplitude for arbitrary (complex) center-of-mass energy. I will also discuss many avenues for future applications and generalizations

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