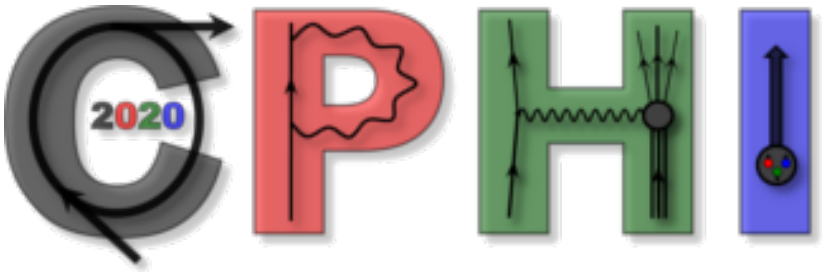

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Fock expansion of Bound States

Thursday 6 February 2020 16:10 (25 minutes)

Bound states may be approximated by their valence Fock states $|val\rangle$, with higher Fock components perturbatively generated by the Hamiltonian, $H^n|val\rangle$. In temporal ($A^0 = 0$) gauge Gauss' law appears as a constraint on physical states, fixing the instantaneous potential energies of all Fock components. A dimensionful parameter arises in QCD through the boundary condition on the solution of Gauss' law. This determines the confinement scale. The quantum numbers of atoms and hadrons are given by their valence states since the Hamiltonian conserves J^{PC}. Such approximate QCD states may serve as a model for studying TMD's and other parton distributions.

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