## Light Cone 2021: Physics of Hadrons on the Light Front



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## All-charm tetraquark using BLFQ

Tuesday 30 November 2021 14:50 (20 minutes)

We present the first results of all-charm tetraquark calculations using many-body basis function approach in the Front Form of Hamiltonian dynamics known as Basis Light-Front Quantization (BLFQ). We numerically find masses of the ground-state tetraquark and three estimates of the lowest two-meson threshold. All degrees of freedom of each quark and antiquark are explicitly taken into account. We restrict our basis states to overall color-singlet states only. Pauli exclusion principle for identical quarks and identical antiquarks is properly incorporated into the computation. Reconciliation of color-singlets with Pauli exclusion principle requires special attention. We use quadratic confining potential (both transverse and longitudinal) and onegluon-exchange spin-dependent interactions between particles. We demonstrate that the interactions obey cluster decomposition principle, however, unexpected difficulties force us to make ad hoc modifications to the potentials.

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