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Nucleon properties from basis light front quantization

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The basis light front quantization (BLFQ) approach has been developed for solving many-body bound state problems in quantum field theories. We investigate several aspects of the nucleon properties such as electromagnetic form factors, generalized parton distributions (GPDs) etc. using the framework of BLFQ. We consider the light front wavefunctions obtained by diagonalizing the effective Hamiltonian consisting of the holographic QCD confinement potential, the longitudinal confinement, and a one-gluon exchange interaction with fixed coupling. The obtained results in BLFQ formalism are compared with the light-front quark-diquark model constructed from the soft-wall AdS/QCD prediction.

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