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# Minkowski-Space Techniques to Study Light Hadrons

We present a description of the pion and nucleon based on solutions of the Bethe-Salpeter equation (BSE) constructed with phenomenological kernels in Minkowski space. The Nakanishi integral representation is employed to solve the pion BSE in Minkowski space, and various observables are computed. These include the charge form factor, which incorporates higher Fock-state contributions alongside the valence component; in particular, the charge radius associated with the higher Fock states is found to be approximately half a femtometer. We also show the projection of the pion valence state onto the null-plane and present its parton distribution functions and transverse momentum distributions, including an estimated gluonic contribution. The proton structure is described via the light-front projection of the Faddeev–Bethe-Salpeter equation, focusing on the valence parton distribution and its projection onto the null-plane. Finally, future research directions are briefly outlined.

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