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Minkowski space description of the nucleon and pion

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I will review the application of few-body methods to explore the structure of light hadrons in Minkowski space. The description of the nucleon and pion are based on the solution of the BetheSalpeter equation in Minkowski space built with phenomenological kernels. For the proton, we will show results obtained with the projection onto the light-front of the Faddeev-Bethe-Salpeter equation, including the valence parton distribution and the image of the valence state on the nullplane. The results for the pion structure observables are computed from the solution of the Bethe-Salpeter equation in Minkowski space using the Nakanishi integral representation. Results for the pion charge form factor, including higher Fock-components will be shown, and compared to the valence one. We found that the charge radius of the higher Fock components is about a half femtometer. The image of the pion valence state onto the null-plane will be presented, as well as results for the PDF and transverse momentum distributions. Some future prospects of research along these lines will be provided.

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