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Proton spin structure from a light-front Hamiltonian approach

I will report our recent results on proton spin structure from a light-front Hamiltonian approach. In this approach we obtain the light-front wave function of the proton through solving the eigenvalue problem of the light-front Hamiltonian of QCD in a basis based on the Fock-sector expansion. Then using the obtained light-front wave function we calculate the observables characterizing the spin structure of the proton. I will present our results on spin-dependent collinear, generalized and transverse-momentum-dependent parton distributions for the quarks and gluons in the proton. Based on these observables I will show the resulting proton spin decomposition from the light-front Hamiltonian viewpoint.

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