Contribution ID: **91** Type: **Contributed talk**

Basis light-front quantization approach to $\Lambda(\Sigma^0, \Sigma^+, \Sigma^-)$ and $\Lambda_c(\Sigma_c^+, \Sigma_c^{++}, \Sigma_c^0)$

Wednesday 1 December 2021 15:30 (15 minutes)

We obtain the masses, the electromagnetic properties, and the parton distribution functions (PDFs) of the baryons (with a strange quark Λ and a charm quark Λ_c, and their isospin triplet baryons) from a light-front effective Hamiltonian in the leading Fock sector. The effective Hamiltonian consists of the confining potential adopted from light-front holography in the transverse direction, a longitudinal confinement, and a one-gluon exchange interaction with fixed coupling. The electromagnetic radii and the magnetic moments are found to be consistent with the available experimental data. We also show a comparison with the other theoretical calculations on the electromagnetic properties of these baryons. We present the gluon and the sea quark PDFs which we generate dynamically from the QCD evolution of the valence quark distributions.

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Session Classification: Parallel Session