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Search for the five-quark components in the ground-state baryons
BIJAN SAGHAI, Irfu, CEA/Saclay, France, C.S. AN, IHEP, Beijing, China — Sea quark contents of the octet baryons are investigated by employing an extended chiral constituent quark approach, which embodies higher Fock five-quark components in the baryons wave-functions. We calculate both diagonal and non-diagonal matrix elements for all 17 five-quark configurations and remove contributions from the center-of-mass motion of the quark clusters. Results are compared to other theoretical findings, such as lattice-QCD, and to various data coming from JLab, Fermi Lab, MAMI... on the observables such as strangeness magnetic form factor of the proton, flavor asymmetry of the nucleon sea $\bar{d} - \bar{u}$, radiative and strong decays of the $\Lambda(1405)$ resonance, strong decay of low-lying S_{11} and D_{13} nucleon resonances... Probabilities of $\bar{u}$, $\bar{d}$ and $\bar{s}$ in the nucleon, Λ, Σ and Ξ baryons, due to the intrinsic five-quark components in the baryons wave functions are predicted, based on the probability amplitudes calculated within the most commonly accepted $q\bar{q}$ pair creation mechanism, namely, the $^3P_0$ model.

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