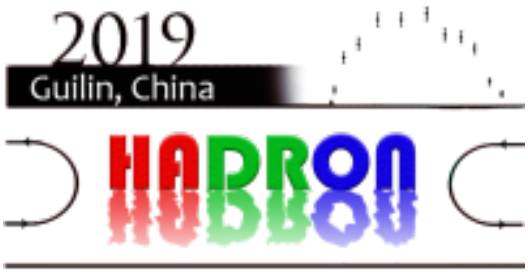

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Excited light baryons from quark-gluon-level calculations

Sunday, 18 August 2019 10:45 (35 minutes)

The task of mapping and explaining the spectrum of baryons and the structure of these states in terms of quarks and gluons is a longstanding challenge in hadron physics, which is likely to persist for another decade or more. We review the progress made in this topic using a functional method that combines Dyson-Schwinger equations with hadronic bound-state equations, namely Bethe-Salpeter and Faddeev equations. This framework provides a non-perturbative, Poincaré-covariant continuum formulation of Quantum Chromodynamics which is able to extract novel insight on baryon properties since the physics at the hadron level is directly related with the underlying quark-gluon substructure, via convolution of Green functions. Since the approach provides access to all momentum scales, it is particularly suited to study baryon elastic and transition form factors as well as generalized parton distributions; therefore, a recent application to the nucleon's structure functions shall be discussed.

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