Contribution ID: **31** Type: **not specified**

Expression for the potential angular momentum within the scalar diquark model

Wednesday 29 January 2020 15:40 (25 minutes)

One of the challenges of both nuclear and hadronic physics is to fully understand the structure of nucleons and nuclei through the measurements of its structure functions. In particular, possible future experiments at the EIC are aimed to understand the origin of the spin of the proton. This requires a proper decomposition of the nucleons total angular momentum into an orbital motion and intrinsic spin. The most common decompositions of angular momentum are the Jaffe-Manohar (canonical) and Ji (kinetic) decompositions, which differ by the so-called "potential angular momentum" and that depend on how the contributions are attributed to quarks and gluons.

Even if some lattice calculations has shown that difference between the decompositions is non-zero, we justify a non-vanishing potential angular momentum using perturbation theory within a simple scalar diquark model at two-loop level, and motivate the interpretation of such a difference as originating from the torque exerted by initial or final state interactions on the struck quark.

Presenter: AMOR, Arturo (Ecole polytechnique)

Session Classification: QCD