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Model expression for the Potential Angular Momentum in the LC-Gauge

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The most common decompositions of angular momentum are the Jaffe-Manohar (canonical) and Ji (kinetic) decompositions, which differ by the potential angular momentum and depend on how the contributions are attributed to quarks and gluons. Lattice calculations has shown that difference between such decompositions is non-zero.

We justify using perturbation theory within a simple scalar diquark model at two-loop level the physical interpretation of a non-vanishing potential angular momentum as originating from the torque exerted by initial or final state interactions encoded in the light-cone gauge at light-cone infinity.

Authors: BURKARDT, Matthias; LORCÉ, Cédric (Ecole polytechnique); AMOR, Arturo (Ecole polytechnique)

Presenter: AMOR, Arturo (Ecole polytechnique)

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