Organisé conjointement par
CPHT-École Polytechnique et Groupe Théorie IPN Orsay

SÉMINAIRE de PHYSIQUE des PARTICULES

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Angular Momentum Conservation Law in Light-Front Quantum Field Theory

Résumé :
Understanding the angular momentum decomposition and helicity sum rule for nucleons is of great interest in hadron physics. I will prove the Lorentz invariance of the angular momentum conservation law in the light-front formulation. I will show explicitly that the z-component of the angular momentum for any relativistic system remains unchanged under Lorentz transformations generated by the light-front kinematical boost operators. Applying the Lorentz invariance of angular momentum in the front form, I will present a selection rule for the orbital angular momentum which can be used to eliminate certain interaction vertices in QED and QCD. The selection rule can be generalized to any renormalizable theory to give an upper bound on the change of orbital angular momentum in scattering processes at any fixed order in perturbation theory.

Jeudi 26 Octobre 2017

11:00

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