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Probing Spin Interference with Energy Correlators

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The study of spin effects in QCD has a long history. Precision jet substructure opens new doors for studying these effects. To achieve this goal, one hopes to find a spin-sensitive observable that is also theoretically accessible to perturbative calculation and resummation, which is in general not an easy task.

In this talk, I will show that spin effects are encoded in the shape dependence of multipoint energy correlators. In a particular kinematic limit, called the squeezed limit, one can see a sinusoidal pattern in the angular distribution of energy, which is the result of the interference of gluon spin in the jet. All orders resummation in the squeezed limit is governed by the twist-2 transverse spin-2 gluon operator. I will also discuss how to enhance the spin effects within this approach, as well as other observables for gluon spin interference.

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