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Spin dependent gluon distributions and their measurement in heavy quark production processes

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Gluon pdf's, GPD's and TMD's play a significant role in an array of scattering processes, including SIDIS, DVCS, exclusive meson electroproduction and p p scattering. Spin dependent gluon distributions can lead to distinctive features in the angular dependences and asymmetries of the scattering processes. Of particular interest are heavy quark production processes, wherein spin observables of the heavy quarks adumbrate the underlying gluon spin dependences. Top pair production at LHC is a prime example that proceeds primarily via gluon fusion. Decays of polarized top pairs through various channels produce a variety of correlations among the decay products - particles and jets. Combinations of the gluon distributions, either polarized or unpolarized, can be accessed experimentally through angular dependences of decay products, as will be shown, along with predictions from a "flexible"spectator model of gluon distributions.

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