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What top quark spin correlations can tell us about gluon transversity

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The production of heavy flavor quark pairs, especially top-anti-top at the LHC, proceed primarily through gluon fusion. Correlations between the gluon spins affects spin correlations between the produced quark and anti-quark. For top-antitop production, their spin asymmetries and double correlations of spins will be manifest in the subsequent hadronization and decay distributions. These asymmetries and correlations are shown to be significant for the dilepton channel, which allows for the extraction of gluon spin information as well as providing a window into possible interactions Beyond the Standard Model. Particular spin related asymmetries will be presented. The implications for experimental determination of gluon transversity will be discussed.

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