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On two-body and three-body spin correlations in leptonic $t\bar{t}Z$ production and anomalous couplings at the LHC

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We study the anomalous $t\bar{t}Z$ couplings in the $t\bar{t}Z$ production in leptonic final state at the 13 TeV LHC. We use the polarizations of top quarks and Z boson, two-body and three-body spin correlations among the top quarks and Z boson, and the cross section to probe the anomalous couplings. We estimate one parameter and simultaneous limits on the couplings of the effective vertex as well as the effective operators for a set of luminosities 150 fb^{-1}, 300 fb^{-1}, 1000 fb^{-1}, and 3000 fb^{-1}. The polarizations and the spin correlations are found to be helpful on top of the cross section to better constrain the anomalous couplings.

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