

# Machine-Learning quantum entanglement with top quark pair production at the LHC

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The top quark spin information is highly correlated with the final state lepton polarization, making the dileptonic  $t\bar{t}$  events good candidates to study quantum entanglement at the LHC. The  $t\bar{t}$  momentum reconstruction is a key ingredient to accurately assessing such measurements. We will be comparing the strengths and weaknesses of different top-quark momentum reconstruction methods. We will then discuss a necessary and sufficient condition to define entanglement for the dileptonic  $t\bar{t}$  events, and compare the reconstructed entanglement information.

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