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Entanglement of top quarks

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Entanglement is an intrinsic property of quantum mechanics and its measurement probes the current understanding of the underlying quantum nature of elementary particles at a fundamental level. A measurement of the extent of entanglement in top quark and top antiquark events produced in proton-proton collisions at a center-of-mass energy of 13 TeV is presented. The events are selected based on the presence of two oppositely charged high transverse momentum leptons and the data recorded by the CMS experiment at the CERN LHC in 2016 correspond to an integrated luminosity of 35.9 fb−1. This measurement provides a new quantum probe of the inner workings of the standard model and is sensitive to new physics contributions.

Mini Symposia (Invited Talks Only)

Author: JUNG, Andreas Werner (Purdue University (US))

Presenter: JUNG, Andreas Werner (Purdue University (US))

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