



Contribution ID: 431

Type: **Parallel**

Observation of top-quark pair production in heavy-ion collisions with the ATLAS detector

Measurements of top-quark pairs in heavy-ion collisions are expected to provide novel probes of nuclear parton distribution functions as well as to bring unique information about the time evolution of strongly interacting matter. We report the observation of top-quark pair production in proton-lead collisions at the centre-of-mass energy of 8.16 TeV in the ATLAS experiment at the LHC. Top-quark pair production is studied in the lepton+jets and dilepton channels, and the nuclear modification factor is measured for the first time for the top-quark pair process. Also, the first observation of top-quark production in Pb+Pb collisions at the centre-of-mass energy of 5.02 TeV is presented. Top-quark pair production is measured in the $e\mu$ channel, with a significance of 5.0 standard deviations. The results are compared to theory predictions based on different nuclear PDF sets.

Secondary track

Author: COLLABORATION, ATLAS

Session Classification: T04

Track Classification: T04 - Ultra-relativistic Nuclear Collisions