

Abstract:

Highly energetic jets are considered to be a direct probe of hot and dense QCD medium created in heavy ion collisions. Jet measurements performed both at the LHC and RHIC indicate a presence of the jet quenching phenomenon. This thesis summarizes ATLAS jet heavy ion measurements and it reports the first exploratory study of properties of the multi-jet production in heavy ion collisions presented in terms of yield of neighbouring jets. The work is expected to shed a light on the process of the parton energy loss. The measurement is performed using the Pb+Pb collision data collected by ATLAS detector during the 2011 LHC runs at the nucleon-nucleon center of mass energy of 2.76 TeV.