Electrons from B-meson semileptonic decay in 2.76 TeV p-p collisions identified by the ALICE EMCal TOMAS ARONSSON, Yale University, ALICE COLLABORATION — High-energy heavy ion (HI) collisions at the LHC allow physicists to study the properties of the quark-gluon plasma (QGP). Heavy quarks produced in the hard-scattering of the HI collision are excellent probes of the QGP. When they traverse the QGP the heavy quarks are expected, according to pQCD, to suffer an energy loss per unit distance proportional to the inverse of the quark mass. Experimental data from RHIC indicate small or no such mass dependence. Beauty quarks, which are considered heavy quarks, produce hadrons with a relatively long lifetime ($c_\tau \sim 100$ - 500 μm). The semileptonic decay of these hadrons can be identified against the background by secondary vertex reconstruction from high momentum electrons and associated hadrons. The ALICE EMCal detector possesses outstanding particle identification for electrons at high transverse momentum p_T. This in combination with the ALICE central tracking detectors provides identification of secondary verticies from semileptonic decay of B-mesons. The electron associated with the secondary vertex is then tagged as a B-electron and the resulting B-jets can be used to extract information on the transport properties of the QGP. In this talk we present initial studies of the identification of electrons from B-meson decay by using primarily the EMCal in the ALICE experiment from p-p data. The data analyzed is 2.76 TeV p-p collisions recorded in 2011 which is to be compared to Pb-Pb collisions in order to determine the effects of the medium.

Tomas Aronsson
Yale University, ALICE Collaboration

Electronic form version 1.4