Contribution ID: **477** Type: **Contributed talk**

Event shape engineering with the ALICE detector

Tuesday 29 September 2015 10:00 (20 minutes)

Event shape engineering (ESE) is a differential technique, which involves selecting events based on their anisotropic flow, and studying other observables with respect to the magnitude of that flow [1]. These studies have been pursued by the ALICE, ATLAS, and PHENIX collaborations, and promise to open up a new paradigm in the era of high statistics heavy-ion data. We will show the latest results from the ALICE collaboration for Pb-Pb 2.76 TeV collisions. In particular, we will show new studies on event by event correlations of radial and anisotropic flow, and discuss how these studies can place extra constraints on the initial conditions. We will demonstrate how the pion, kaon, proton spectra evolve with the event-wise anisotropic flow, and use a blast wave model to determine changes in the radial flow velocity. We will also review the sensitivity of the ESE technique, by comparing results using different ALICE sub-detectors. Finally, we will discuss the feasibility of more statistically demanding ESE studies for the upcoming LHC run 2 and 3 data.

[1] Ultra-relativistic nuclear collisions: Event shape engineering, J. Schukraft, A. Timmins, S. Voloshin, J. Phys. Lett. B **719** (2013) 394–398

On behalf of collaboration:

ALICE

Author: TIMMINS, Anthony Robert (University of Houston (US))

Presenter: TIMMINS, Anthony Robert (University of Houston (US))

Session Classification: Collective Dynamics I

Track Classification: Collective Dynamics