

# Heavy flavor directed flow as a probe of matter distribution in heavy-ion collisions

*Saturday 6 January 2018 15:00 (30 minutes)*

The breaking of longitudinal boost invariance in non-central relativistic heavy ion collisions due to asymmetric local participant densities gives rise to a tilt in the reaction plane in the thermalized medium. A direct consequence of this is the observed rapidity odd directed flow of charged particles. We study the  $v_1$  of D mesons by evolving the charm quark phase space distribution within Langevin dynamics coupled to a hydrodynamic background. We find the charm  $v_1$  to be several times larger than the observed charged particle  $v_1$  [1]. The  $v_1$  slope at mid-rapidity is sensitive to the magnitude of the tilt of the initial thermalized medium. Thus, its measurement will allow us to extract the tilt which also sets the scale of longitudinal correlation.

[1]. S. Chatterjee and P. Bozek (2017), arXiv:1712.01189 [nucl-th]

**Primary authors:** CHATTERJEE, Sandeep (AGH University of Science and Technology, Krakow); BOZEK, Piotr (AGH University of Science and Technology)

**Presenter:** CHATTERJEE, Sandeep (AGH University of Science and Technology, Krakow)

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