

The Rise and Fall of the Ridge at RHIC and the LHC

Recent data from heavy ion collisions at RHIC show unexpectedly large near-angle correlations that broaden longitudinally with increasing centrality. The amplitude of this ridge-like correlation rises rapidly, reaches a maximum, and then falls in the most central collisions. In this talk we explain how this centrality dependence arises from an interplay between initial state density fluctuations and the almond shape of the overlap region. We show that the disappearance of the almond shape in central collisions leads to the observed reduction in the near-side ridge, uniquely linking the ridge to initial-state coordinate-space anisotropies converted into final-state momentum-space correlations. We show how the width of the ridge is related to length scales in the expanding system and we provide a prediction for the ridge amplitude in Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV.

Author: Dr SORENSEN, Paul (BNL)

Co-authors: Dr MOCSY, Agnes (Pratt Institute); BOLLIET, Boris (ENS de Lyon); Prof. PRUTHI, Navneet (Panjab University); PANDIT, Yadav (Kent State University)

Presenter: Dr SORENSEN, Paul (BNL)

Track Classification: Correlations and fluctuations