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Investigating the ridge structure in $\Delta\eta$ - $\Delta\phi$ correlations at STAR

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Triggered di-hadron correlation studies using Au+Au collisions at $\sqrt{s_{NN}} = 200\text{ GeV}$ in STAR revealed a novel “ridge-like” structure in two dimensions ($\Delta\eta$, $\Delta\phi$) [1] for high p_T particles. Similar structure was also present in an inclusive un-triggered di-hadron correlation analysis [2]. We study the $\langle p_T \rangle$ evolution of un-triggered analysis by increasing the lower p_T cutoff of both charged particles. A smooth evolution of data is observed for $p_T \geq 2.7\text{ GeV}/c$. We further quantify the correlation structure evolution by fitting a model function. The model function emphasizes $(1, 2, 3, 4)$ and the remainder is modeled via an asymmetric 2d Gaussian. Extracted harmonic parameters are compared to model predictions at $\sqrt{s_{NN}} = 200\text{ GeV}$ and charged dependent studies.

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- [3] B. Alver et al., Phys. Rev. C 81, 054905 (2010)
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