Contribution ID: **408** Type: **Poster**

Fluctuations and the Ridge from RHIC to LHC

LHC and RHIC experiments exhibit a ridge-like enhancement of two particle correlations that is narrow in relative azimuthal angle $\Delta\phi$
and broad in relative pseudorapidity $\Delta\eta$. Causality implies that correlations between particles separated by a large $\Delta\eta$ must originate at the moment of production. These measurements can therefore reveal how particle production occurs. We were among the first to point out that such correlations can emerge as a consequence of fluctuating initial conditions and the subsequent transverse expansion. Taking the initial fluctuations as resulting from Glasma flux tubes, we successfully describe available ridge measurements, including the collision energy, centrality, and transverse momentum, dependencies of the ridge amplitude and azimuthal width. The effect of initial fluctuations on jet production and quenching has also been studied.

In this talk we explore the impact of spatial triangularity of the Glasma flux tubes on the $\Delta\phi$ dependence of two particle correlations. Our approach exploits the relationship between fluctuations and correlations and is compatible with multiplicity and p_t fluctuation measurements. We calculate v_3 in our approach and compare to other model predictions. Additionally, we present our prediction for the ridge in Pb+Pb collisions at the LHC, and compare our model to the ridge recently seen by CMS in high multiplicity 7 TeV proton-proton collisions, a measurement that could illuminate the interplay between hard and soft particle production.

Primary author: Dr MOSCHELLI, George (Frankfurt Institute for Advanced Studies)

Co-author: Prof. GAVIN, Sean (Wayne State University)

Presenter: Dr MOSCHELLI, George (Frankfurt Institute for Advanced Studies)

Track Classification: Correlations and fluctuations