Contribution ID: **32** Type: **Oral Presentation**

Bayesian model comparison for one-dimensional azimuthal correlations

Monday, 5 October 2015 11:56 (16 minutes)

In the context of data modeling and comparisons between different fit models, Bayesian analysis calls that model best which has the largest evidence, the prior-weighted integral of the likelihood function over model parameters. Evidence calculations automatically take into account both the usual chi-squared measure and an Occam factor which quantifies the price for adding extra parameters. Applying Bayesian analysis to 1D projections onto azimuth of 2D angular correlations from 200 GeV AuAu collisions, we consider typical model choices including Fourier series and a Gaussian plus combinations of individual cosine components. A power-spectrum analysis is also performed. We find that models including a Gaussian component are consistently preferred over pure Fourier-series parametrizations, sometimes strongly so. For models including a Gaussian an additional cylindrical quadrupole is required in some cases but rejected for 0-5%-central collisions. Higher harmonics are always rejected.

Primary authors: EGGERS, Hans (Stellenbosch University); DE KOCK, Michiel (Stellenbosch University); TRAINOR, Thomas (Universityh of Washington)

Presenter: EGGERS, Hans (Stellenbosch University)

Session Classification: Multiparticle Correlations and Fluctuations

Track Classification: Multiparticle Correlations and Fluctuations