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Symmetry-plane correlations in flow analyses

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Multiparticle correlations built from azimuthal angles whose distributions have been parametrized with the Fourier series expansion, depend generically on two distinct degrees of freedom: flow amplitudes v_n and symmetry-planes Ψ_n . While analyses techniques for flow amplitudes v_n have advanced over the past years, robust and unbiased techniques for analysing symmetry-planes Ψ_n still need to be developed. Previous attempts in the measurements of symmetry-plane correlations (SPC) in high-energy nuclear collisions have built-in biases due to neglected correlations between the flow amplitudes v_n themselves. In this poster, we summarize the recent improvements in the direction of newly developed analyses techniques for SPC without these built-in biases. Predictions of these new observables in high-energy nuclear collisions are provided for the initial coordinate space by MC-Glauber and for the momentum space by iEBE-VISHNU.

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