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Dynamical attractors in 3+1D full Boltzmann transport for different collision systems: moments, anisotropic flows v_n and impact of initial state momentum correlations

We employ a Relativistic Full Boltzmann Transport approach to investigate the emergence of universality in a wide range of collision systems, starting from a typical pp setup and going up to pA and AA collisions. Our focus is concentrated on the attractor behaviour in the momentum moments of the distribution function and in the anisotropic flows v_n , with particular attention on the impact of Glasma initial correlations in momentum space on the $v_n(p_T)$ going from pp , to pA and AA collisions. We study how the interplay of the transverse system size R and the mean free path λ_{mfp} allows to define an equivalence relationship between different simulations and how their ratio compares to the well-known opacity parameter $\hat{\gamma}$. Finally, we show first results in the non-conformal case (finite mass) and for a temperature-dependent η/s , discussing when they imply deviations from universality.

V. Nugara, S. Plumari, L. Oliva, V. Greco, Eur. Phys. J. C 84 (2024) 8, 861

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Category

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