Space-Time Characterization and Collective Motion at Intermediate Energies

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Shape analyses of two-particle correlation functions are discussed. Two-proton imaging provides information about the volume, the relative contributions between fast and slow emitting sources and the profile of the twoparticle source that can be directly compared to microscopic model simulations. In the case of correlations between complex particles, the role played by collective motion and space-momentum correlations needs special

considerations. By means of a semi-quantitative Monte Carlo approach, deuteron-alpha correlation functions measured in Xe+Au collisions at E/A=50 MeV are investigated. The comparison reveals the existence of a position-relative momentum correlation that reduces the apparent source size and distorts the line-shape of the correlation function. The developed ideas show how intensity interferometry with complex particles is sensitive not only to the geometry of the system but also to the interplay between collective and thermal motion.

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