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Femtoscopy with hyperons as a gateway to study neutron stars (invited talk)

Wednesday, April 2, 2025 12:00 PM (30 minutes)

Femtoscopy is a powerful technique for studying final-state interactions between hadrons, employing two- and three-body correlations to analyze the emission source and final-state interactions of particles with low relative momentum. Recent research by the ALICE collaboration has demonstrated the realization of a common baryon-baryon emission source in pp collisions, opening new avenues for studying the properties of the final-state interaction (FSI). In particular, the pΛ system has been measured with unprecedented precision, allowing for better constraints on existing theoretical models.

This talk will present the results of a combined analysis of femtoscopy and scattering involving pΛ, along with the impact on the allowed scattering parameters, the in-medium U_Λ potential as a function of density, and the consequences for the nuclear equation of state, as well as the appearance of hyperons within neutron stars. The talk will conclude with an overview of the latest relevant two- and three-body results and the prospects they bring for the future.

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Session Classification: Plenary Session