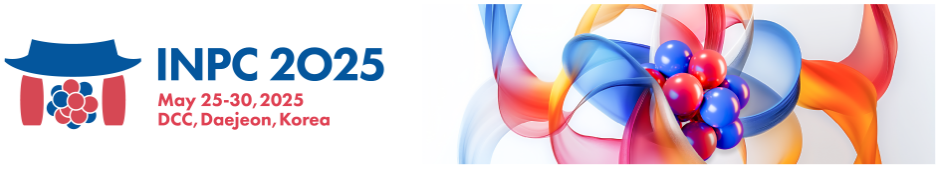

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Extract the n-n interaction strength and the space-time size of neutron emission using femtoscopic method

Friday, 30 May 2025 08:30 (25 minutes)

Neutron-Neutron strong interaction strength is of importance in understanding the charge symmetry breaking of nuclear force, as well as in describing the nuclear matter properties in neutron rich environment. Measuring the n-n scattering length is not feasible in direct scattering process because there is no neutron target available. However, it can be done by using the two-particle correlation function in heavy ion reactions. In this talk, I will present the measurement of the n-n correlation functions in 25 MeV/u ^{124}Sn+^{124}Sn reactions with the Compact Spectrometer for Heavy IoN Experiment (CSHINE). The n-n scattering length f_0^{nn} and effective range d_0^{nn} has been extracted using Lednicky-Lyuboshitz approach. Meanwhile, the space-time size of the neutron emission has been extracted simultaneously. Clear momentum dependence of the source size has been observed.

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