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# Probing space–time characteristics and collective dynamics of light-ion collisions via femtoscopy with ALICE

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Identical-particle femtoscopy is a powerful tool to probe the space–time structure of the particle-emitting source created in relativistic heavy-ion collisions, through correlations of particle pairs at small relative momenta. Femtoscopic correlations measured by ALICE with Run 3 data for both identical charged pions and protons in OO and Ne–Ne collisions at $\sqrt{s_{\mathrm{NN}}} = 5.36$ TeV are presented.

The 3D pion–pion and 1D proton–proton femtoscopic radii are extracted in several intervals of pair transverse momentum and event multiplicity, also employing spherical harmonic decomposition. These measurements provide new insights into the space–time structure of the particle-emitting source in small collision systems, its relation to collective effects, and extend previous heavy-ion results to offer a more comprehensive picture of the evolution of source sizes across different collision systems.

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