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Three-dimensional Kaon Source Imaging from STAR Experiment at RHIC

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Three-dimensional source imaging techniques in conjunction with detailed model comparisons have shown the viability of disentangling the spatio-temporal information contained in two-pion interferometric measurements from ultra-relativistic heavy ion collisions. This has led
to the observation of non-Gaussian tails in the 3D pion source function
and the extraction of finite pion emission duration at RHIC energies.
The STAR Collaboration has recently also extracted the 3D kaon source function from a high statistics two-kaon interferometric measurement from Au+Au collisions at sqrt_sNN = 200 GeV. Such measurement offers a window into the fireball freeze-out dynamics with a much cleaner probe with smaller resonance decay contributions than for the pion case. The extracted space-time characteristics are compared with those obtained from pion analysis. The implications with respect to the validity of the Buda-Lund hydrodynamic expansion scenario are discussed.

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