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Multi-pion BE correlations on source distribution

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Abstract

Ultrarelativistic hadronic and nuclear collisions provide a unique environment to create dozens, and in some cases hundreds, of pions. To study the pion source distributions in these processes, therefore, one must take into account the effects of multi-pion Bose-Einstein (BE) correlations. The bosonic nature and isospin of the pion should affect the single pion spectrum distribution in coordinate space. However, this issue has not yet been discussed in the literature. The purpose of this talk is to analyse the effects of multi-pion correlation and isospin on the source distribution in coordinate space. It is shown that multi-pion Bose-Einstein correlations make the average radius of the pion source become smaller. The isospin effect on the pion multiplicity distribution and the source distribution is also discussed.