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Multiparticle correlations from the direct calculation of cumulants using particle azimuthal angles. SHENGQUAN TUO, Vanderbilt University — Instead of using the generating function or Q-cumulant methods for multiparticle correlation studies in heavy ion collisions, we calculate the cumulants directly looping over particle azimuthal angles. It is shown that this method is not possible for central and mid-central AA collisions due to the required computing resource, but possible for smaller collision systems and peripheral AA collisions. With this method we are able to study the correlations as a function of particle pseudorapidity gap between each particle in the multiparticle correlations. The method is tested with PYTHIA and HIJING models and it provides better statistical precision than the three subevent cumulant method with a pseudorapidity gap using the same amount of data.

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