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Angular Power Spectrum in Heavy Ion Collisions from Simulations HANNAH ANDERSON, SHENGQUAN TUO, Vanderbilt University — The pixelization code HEALPix was created by the Jet Propulsion Laboratory to analyze the cosmic microwave background. As has been shown using public data from the ALICE experiment, its two-dimensional representation of a sphere containing pixels of equal area has a broader application to heavy ion collisions. The application of HEALPix includes the concept of the angular power spectrum which details the contribution of spherical harmonics to the distribution of particles over the detector. This angular power spectrum can be directly related to the density and distribution of particles, which in turn relates to the particle flow. Through the use of simulated heavy ion data, we explore different aspects of the angular power spectrum and how it relates to flow analysis. There are some important details not covered within this study, such as the influence of non-flow. Therefore, the influence of non-flow is discussed in relation to the flow analysis. The angular power spectrum and features within the odd modes are detailed along with their specific application in heavy ion collisions. Through this study, it has become clear that HEALPix is another viable tool to be used in heavy ion flow analysis.

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