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Flow simulation at 500 MeV/u U+U in CEE experiment

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The Cooling-Storage-Ring External-target Experiment (CEE) at Heavy Ion Research Facility in Lanzhou (HIRFL) is designed to study the properties of nuclear matter created in heavy-ion collisions at a few hundred MeV/u to 1 GeV/u beam energies, facilitating the research of quantum chromodynamics phase structure in the high-baryon-density region.
Collective flow is one of the most important observables in heavy-ion collision experiments to study the bulk behavior of the created matter.
Even though the standard event plane method has been widely used for collective flow measurements, it remains crucial to validate and optimize this method for the CEE spectrometer.
In this talk, we present the experimental procedures for event plane reconstruction and for measuring directed flow and elliptic flow in ^{238}U+^{238}U collisions at 500 MeV/u, with event planes reconstructed using both the Multi Wire Drift Chamber and the Zero Degree Calorimeter with and without magnet, respectively. At this energy, the elliptic flow may reach its minimum value.
Multiple event generators, such as IQMD, UrQMD, and JAM, are used to simulate events, and the detector response is modeled using the CEE Fast Simulation (CFS) package.

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