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Collective flow of light nuclei in Au+Au reactions at 1.23 A GeV

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We explore the rapidity and transverse momentum dependence and mass number scaling of collective flow harmonics of light nuclei in Au + Au reactions at a beam energy of 1.23 AGeV within the UrQMD approach. These investigations are of direct relevance for the high acceptance di electron spectrometer (HADES) experiment at the GSI Helmholtzzentrum für Schwerionenforschung in Darmstadt, Germany, that has recently presented first data on the flow of light clusters in Au + Au collisions at 1.23 AGeV. To address the flow of light nuclei, UrQMD has been extended by a phase-space coalescence approach. We find that this ansatz provides a very good description of the measured deuteron and proton flow data, if a hard equation of state is used for the simulation. The results show a strong impact of cluster formation on the observable collective flow and agree well with the data obtained by the HADES collaboration.

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