

QPT 2021

Guiyang, China

Contribution ID: 108

Type: not specified

New opportunities to study nuclear structure physics using heavy-ion collisions

In the past, the heavy ion collisions have always assume an initial condition that is provided by the low energy nuclear structure physics, e.g. the Woods-Saxon geometry. Recent progress in hydrodynamic modeling together with the wealth of precision flow data, however, allow us to not only perform quantitative extractions of the transport properties of the QGP, but very importantly start to strongly constrain the initial geometry of the colliding nuclei. In this talk, I will discuss the exciting possibility of imaging the shape of atomic nuclei using precision flow measurements, including the quadruple, tri-axial and octupole deformations. I will discuss how the shape information probed by heavy ion collision might be different or complementary to those obtained in the nuclear structure experiment. I will argue how a carefully planned system scan of stable species in the nuclear chart at RHIC and other facilities could open new direction of research in heavy ion physics.

Primary author: JIA, Jiangyong (Stony Brook University)

Presenter: JIA, Jiangyong (Stony Brook University)