

Harmonic Flow in a Strongly Interacting Fluid

Haibin Wu¹, and Yugang Ma^{1,2}

¹*School of Physics, East China Normal University, Shanghai 200062, P. R. China and*

²*Key Laboratory of Nuclear Physics and Ion-beam Application,
Institute of Modern Physics, Fudan University, Shanghai 200433, China*

Abstract:

Elliptic flow constitutes the hallmark observable of collective dynamics in heavy-ion collisions, revealing hydrodynamic properties of dense nuclear matter. Strongly interacting Fermi gases provide a clean, controllable strongly correlated quantum fluid to study universal phenomena, bridging ultracold atom experiments and nuclear physics. This talk will focus on higher-order harmonic flow extending beyond elliptic flow. We examine how initial spatial eccentricity generates azimuthal momentum anisotropies at multiple harmonic orders in expanding Fermi gases, and draw parallels with anisotropic flow measurements from heavy-ion experiments. The observed scaling highlights universal features of shear viscosity, thermalization, and nonlinear response in strongly coupled systems.