# Beam-energy and collision-system dependence of the linear and mode-coupled flow harmonics from STAR

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Recent measurements and hydrodynamic model calculations suggest that the higher-order flow coefficients, $v_n$ (n > 3), have two contributions: a linear contribution driven by the same-order initial-state eccentricities, $\epsilon_n$, and a mode-coupled contribution derived from the lower-order eccentricity coefficients $\epsilon_{m<n}$. Measurement of these two contributions to $v_n$ provides crucial insights to discern initial-state models and to constrain the temperature-dependent $\eta/s(T)$ of the plasma produced in heavy-ion collisions. In this work, we have employed the traditional, two- and three-subevents cumulant techniques to provide the first beam-energy and collision-system dependence of the linear and mode-coupled contributions to the higher-order flow harmonics and the associated correlations between different flow symmetry planes. Our results will be presented and discussed for several transverse momenta selections, particle species, event shape selections, and centrality intervals for U+U collisions at $\sqrt{s_{NN}}$ = 193 GeV, Au+Au collisions at $\sqrt{s_{NN}}$ = 200, 54.4, 39, and 27 GeV and Cu+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV. The results are compared with similar studies performed by ALICE/CMS/ATLAS experiments at the LHC. The measurements will also be compared to several viscous hydrodynamic calculations to pin down the respective influence of initial-state fluctuations, mixed harmonic correlations, system size and shape ($\varepsilon$) and $\eta/s(T)$ on $v_n$.