Centrality dependence of the N(Ω)/N(φ) ratios and φ anisotropic flow

SARAH BLYTH, Lawrence Berkeley National Laboratory / University of Cape Town, STAR COLLABORATION — Due to its long lifetime and relatively small hadronic interaction cross-section, the φ-meson is a clean probe for studying the properties of the hot and dense medium created in high-energy nuclear collisions. We present the first results of the centrality dependence of the N(Ω)/N(φ) ratios and φ anisotropic flow ($v_2$) from $\sqrt{s_{NN}} = 200$ GeV Au+Au collisions measured by STAR at RHIC. In more central collisions, the eccentricity-scaled anisotropic flow ($v_2/\epsilon$) is large, indicating a stronger collective expansion at the early partonic stage. For $p_T > 2$ GeV/c, the $v_2$ values are consistent with the $v_2$ values of other mesons, and expectations from parton recombination models. In addition, the N(Ω)/N(φ) ratio is found to increase linearly as a function of $p_T$, a characteristic of coalescence of thermal quarks for both φ and Ω. In the most central collisions, the linear increase reaches up to $p_T \sim 4$ GeV/c implying that most of the multistrange hadrons are formed directly from thermalized s-quarks in Au+Au collisions at RHIC.