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## Correlations between anisotropy flow and mean transverse momentum using subevent cumulants in small systems at CMS

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Measurements at the LHC have provided evidence for collective behavior in high-multiplicity proton-proton (pp) and proton-lead (pPb) collisions through multiparticle correlation techniques. To investigate detailed properties of this collectivity, a comprehensive study of differential Fourier coefficients ( $v_n$ ) in particle transverse momentum ( $p_T$ ) and event multiplicity is presented in proton-lead (pPb) collisions recorded by the CMS experiment at a nucleon-nucleon center-of-mass energy  $\sqrt{s_{NN}} = 8.16$  TeV. In particular, new measurements of  $p_T$ -differential multiparticle cumulants using the subevent cumulant method in distinct subevent regions are presented. Relative to past CMS measurements, the new study probes an extended phase space region up to a high particle  $p_T$ , putting the observation of a nonzero high- $p_T$   $v_2$  in a small-sized medium into stringent tests. In addition, correlations between multiparticle cumulants and the mean transverse momentum ( $\langle p_T \rangle$ ) in pp and pPb, and peripheral lead-lead collisions recorded by the CMS experiment at different  $\sqrt{s_{NN}}$  are presented as a function of charged particle multiplicity. Predictions based on color-glass condensate and hydrodynamic models are compared to the experimental  $\langle p_T \rangle$  results.

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