



Contribution ID: 72

Type: **Experimental**

## Probing novel long-range correlation phenomena in pPb collisions with identified particles at CMS

*Wednesday 24 September 2014 09:45 (20 minutes)*

Observation of a long-range near-side two-particle correlation (known as the “Ridge”) in high-multiplicity pp and pPb collisions opened up new opportunities of exploring novel QCD dynamics in small collision systems. To further investigate the origin of this phenomenon, studies of two-particle correlations with identified  $K_s^0$  and Lambda trigger particles in 5.02 TeV pPb collisions are presented, and compared to PbPb collisions over a similar multiplicity range. The  $K_s^0$  and Lambdas are cleanly reconstructed via their secondary decay vertices over a wide pseudorapidity and transverse momentum range. The second-order ( $v_2$ ) and third-order ( $v_3$ ) anisotropy harmonics of  $K_s^0$  and Lambda are extracted from long-range correlations as a function of particle multiplicity and  $p_T$ . The wide  $p_T$  coverage and rich sample of high multiplicity pPb events allow: (1) a precise examination of the mass ordering effect of  $v_n$  at low  $p_T$  as predicted by hydrodynamics for a collectively expanding medium; (2) exploration of possible constituent quark number scaling of  $v_2$  and  $v_3$  between mesons and baryons as was observed in high-energy nucleus-nucleus collisions.

**Author:** CHEN, Zhenyu (Rice University (US))**Co-authors:** Mr LI, Wei (Rice University (US)); TU, Zhoudunming (Rice University (US))**Presenter:** CHEN, Zhenyu (Rice University (US))**Session Classification:** Session 5**Track Classification:** Correlations and fluctuations