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## Transverse Spherocity and Multiplicity Dependence of $R_2$ and $P_2$ Correlation Functions in pp Collisions at $\sqrt{s} = 7$ TeV Using PYTHIA8

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Event shape observables such as transverse spherocity( $S_0$ ) have evolved as a powerful tool to separate soft and hard contributions in an event in small collision systems. To understand this phenomenon, we used two-particle differential-number correlation functions,  $R_2$ , and transverse momentum correlation functions,  $P_2$ , of charged particles produced in pp collisions at the LHC center-of-mass energy  $\sqrt{s} = 7$  TeV with the PYTHIA model. The  $\Delta\varphi$ -dependence of these correlation functions in different multiplicity and  $S_0$  classes are discussed. We find that these correlation functions exhibit different shapes and sizes in both near-side(NS) and away-side(AS) with multiplicity and  $S_0$  classes. We see a strong correlation in the NS and AS of these correlation functions for low- $S_0$ (jetty-like), which become weaker for high- $S_0$ (isotropic). In addition, mean- $p_T$  of charged particles for low- $S_0$ , high- $S_0$  and  $S_0$ -integrated are discussed. Finally, it was observed that  $S_0$  should be a good observable as compared to multiplicity to disentangle jetty and isotropic events in a small collision system.

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