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Particle production as a function of underlying-event activity in pp, p–Pb, and Pb–Pb collisions and search for jet-like modifications with ALICE

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In this contribution, the similarity between small and large collision systems will be further explored using the underlying event (UE) charged-particle density, N_T and the self-normalized version, R_T . By selecting on N_T/R_T and topological region, different microscopic processes contributing to the inclusive production can be isolated.

Final measurements of charged particle production as a function of N_T in pp, p-Pb and Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV will be presented in the toward, away and transverse regions. The UE contributions measured in the transverse region are subtracted from the toward and the away regions to search for jet-like modifications in small systems. The jet-like signals are studied both as a function of N_T and leading particle p_T .

Final results of π , K and p production as a function of R_T in pp collisions at $\sqrt{s} = 13$ TeV are presented to explore the particle species dependence. In particular, the focus will be on very low (high) R_T to isolate the “jet” (UE) contributions.

All the above results are compared with predictions from QCD-inspired Monte Carlo event generators such as PYTHIA and EPOS LHC.

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