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## Modification of inclusive and heavy-flavor jet structures in high-multiplicity pp collisions

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High multiplicity events of small colliding systems at high c.m.s. energies show similar collective features to heavy ion collisions with comparable multiplicities, such as long-range near-side correlations and  $v_n$  coefficients [1]. Whether this behaviour may be attributed to the presence of a deconfined state in small systems is an open question. Recent analyses of pp and p-Pb collisions also show an universal enhancement of heavy-flavour particles, that is usually attributed to multiple parton interactions (MPI) and higher gluon radiation associated with short distance production processes [2]. While we cannot expect jet quenching to be detectable in small systems, QCD phenomena at the soft-hard boundary may cause a modification of the jet shapes. Existing and forthcoming data at the experiments of the LHC provide means to access such modifications.

Based on extensive studies with event generators, we give predictions for multiplicity-dependent jet structures in p+p collisions at high jet-pT. We show that the presence of MPI modifies the jet shapes in high-multiplicity events beyond trivial selection bias, and that such high-pT multiplicity-differential probes provide a sensitive validation opportunity for models involving different MPI, color reconnection schemes or parton distribution functions [3,4].

Jets from heavy-flavor quarks are expected to undergo different fragmentation than light-flavor jets, due to mass and color charge effects. We show a surprising pattern of multiplicity-dependent structures in jets originating from different flavors [4].

### References:

- [1] J.L. Nagle, W.A. Zajc, arXiv:1801.03477 (to appear in the Annual Review of Nuclear and Particle Science).
- [2] ALICE Coll., JHEP 1608 (2016) 078 and references therein.
- [3] Z. V., R.V., G.G.B, arXiv:1805.03101 (Submitted to J. Phys. G).
- [4] Z. V., R.V., G.G.B, arXiv:1809.10102 (to appear in MDPI Proceedings).

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