

# Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



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## Exploring the phase space of jet splittings in Pb—Pb and pp collisions at $\sqrt{s_{NN}} = 5.02$ TeV in ALICE

*Wednesday 6 November 2019 09:00 (20 minutes)*

Recent ALICE measurements of jet splittings in Pb—Pb and pp collisions using the new 2018 data at  $\sqrt{s_{NN}} = 5.02$  TeV will be shown. These measurements scan the phase space of emissions inside of the jet in search of a medium-induced signal, which are expected to emerge at different scales and include effects such as multiple soft-radiation, single hard emissions, and color coherence. The Lund plane will be explored, including projections onto distributions of the splitting scale  $k_T$  in bins of the splitting angle. Soft Drop (SD) grooming will be applied to access hard splittings within the jet such that various groomed substructure variables can be measured. These include the shared momentum fraction  $z_g$  between the two hardest sub-jets, the number of Soft Drop splittings  $n_{SD}$ , the splitting angle  $R_g$ , and the groomed mass.

These variables will be shown as a function of collision centrality and jet  $p_T$ . A selection on splitting formation time will be explored as an attempt to identify in and out of medium splittings. The results will be shown in Pb—Pb collisions compared to pp collisions that have been embedded into a Pb—Pb background to separate out background from in-medium effects.

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