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Substructure-based classification of medium-modified jets

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We study the feasibility of a substructure-based classification of medium-modifed jets employing a metric formulated in terms of the earth mover's distance. We aim at isolating a subset of jets measured in p–Pb or Pb–Pb collisions that is characterized by an enhanced dissimilarity to the vacuum sample. The selected jet ensemble can be then inspected by projecting it on any substructure observable of interest such as (groomed) jet mass. A particular question addressed in this contribution is whether fluctuations of the underlying event background dominate the substructure-based difference between jets measured in proton-proton and heavy-ion collisions. For this exploratory classification analysis we employ samples of pp/p–Pb/Pb–Pb track-based jets measured with ALICE at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV as well as simulated PYTHIA jets embedded in the underlying event background.

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