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New measurements of inclusive jet R_{AA} with mixing technique and jet v_2 properties with ALICE

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This talk presents new measurements of inclusive jet yield suppression and correlation with event-plane orientation to elucidate the kinematic and path-length dependence of jet energy loss due to quenching. We report measurements of the inclusive charged-particle jet yield in central Pb–Pb collisions, with the large uncorrelated background mitigated using a novel event mixing technique. This approach extends the jet R_{AA} to lower jet p_T than previously achievable, providing significant kinematic overlap with RHIC jet measurements.

In addition to explorations of the low- p_T frontier, we report the inclusive charged-particle jet v_2 in semi-central Pb–Pb collisions, thereby quantifying the yield dependence relative to the event-plane orientation and probing the pathlength dependence of jet energy loss. We also report more differential measurements of this azimuthal dependence by using event-shape engineering to select specific event topologies, and the jet substructure observable R_g to select specific jet topologies. Such measurements improve our understanding of how jet suppression depends on both medium and jet properties.

These results are compared to theoretical calculations, thus providing new insights into jet-quenching phenomenology and its underlying mechanisms.

Category

Experiment

Collaboration (if applicable)

ALICE

Primary author: GRUENWALD, Nadine Alice (Heidelberg University (DE))

Presenter: GRUENWALD, Nadine Alice (Heidelberg University (DE))

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