

# 11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Beitrag ID: 221

Typ: Talk

## Jet suppression and azimuthal anisotropy at RHIC and LHC

Mittwoch, 29. März 2023 15:00 (20 Minuten)

Jets are multi-partonic systems that develop before interactions with the QGP set in and lead to energy loss and modifications of their substructure. Jet modification depends on the degree to which the medium can resolve the internal jet structure that is dictated by the physics of coherence governed by a critical angle  $\theta_c$ . Using resummed quenching weights that incorporate the IOE framework for medium-induced radiation and embedding the system into a realistic heavy-ion environment we compute the  $R$  dependence of jet suppression, both at RHIC and the LHC. At RHIC kinematics we see a very mild  $R$ -dependence for the range of  $R$  studied, similar to what was found at the LHC. We also present results for the jet azimuthal anisotropy  $v_2$  as a function of  $R$ . We observe that as centrality is decreased,  $v_2$  for moderate  $R$  jets sequentially collapse towards the result for small  $R = 0.1$ . The reason of this sequential grouping is the evolution of  $\theta_c$  with centrality due to its strong dependence on the in-medium traversed length. For those jets with  $R > \theta_c$ , traversing shorter lengths within the medium will make a larger difference than for those jets with  $R < \theta_c$ , since the size of the resolved phase-space over which quenching weights are resummed will be reduced. For this reason,  $v_2(R)$  is quite sensitive to the typical value of  $\theta_c$  at a given centrality.

[1] Y. Mehtar-Tani, D. Pablos, K. Tywoniuk. Phys.Rev.Lett. 127 (2021) 25, 252301

### Experiment/Theory

Theory/Phenomenology

### Affiliation

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**Sitzung Einordnung:** Parallel: Jets and their modification in QCD Matter

**Track Klassifizierung:** Jets and their modification in QCD matter