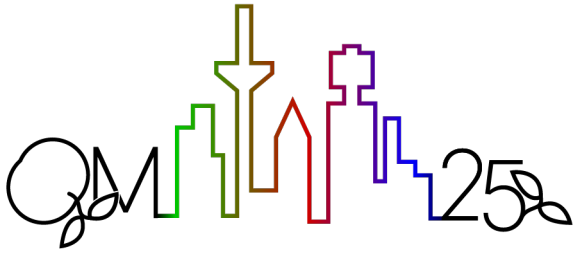

Contribution ID: **550** Type: **Poster**

No-quenching baseline for energy loss signals in oxygen-oxygen collisions

In this work, we perform computations of inclusive jet, and semi-inclusive jet-hadron cross sections for minimum bias oxygen-oxygen collisions at RHIC and LHC collision energies. We compute the no-quenching baseline for the jet nuclear modification factor R_{AA} and jet-, and hadron-triggered semi-inclusive nuclear modification factors I_{AA}. We do this with state-of-the-art nuclear parton distribution functions (nPDFs), next-to-leading-order matrix elements, parton shower, and hadronization. We observe deviations from unity due to cold-nuclear matter effects, even without quenching. We demonstrate that the parton distribution uncertainties constitute a significant obstacle in detecting energy loss in small collision systems. Hadron-triggered observables are particularly sensitive to uncertainties due to correlations between the trigger and analyzed particles. For jet-triggered I_{AA}, there exists a kinematic window in which nPDF, scale, shower, and hadronization uncertainties cancel down to percent level, overcoming a major limiting factor for energy loss discovery in small systems.

Ref. Gebhard, Mazeliauskas, Takacs [arXiv:2410.22405]

Category

Theory

Collaboration (if applicable)

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