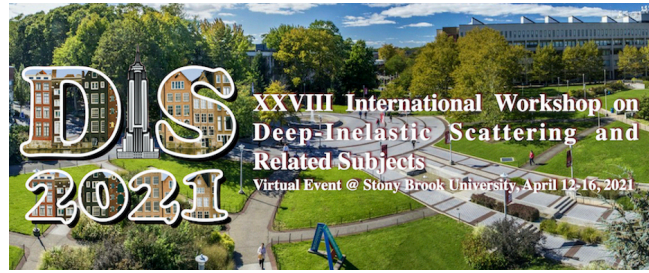


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Nuclear matter effects on jet production at electron-ion colliders

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Jet production and jet substructure in reactions with nuclei at future electron ion colliders will play a preeminent role in the exploration of nuclear structure and the evolution of parton showers in strongly-interacting matter. In the framework of soft-collinear effective theory, generalized to include in-medium interactions, we present the first theoretical study of inclusive jet cross sections and the jet charge at the EIC. Predictions for the modification of these observables in electron-gold relative to electron-proton collisions reveal how the flexible center-of-mass energies and kinematic coverage at this new facility can be used to enhance the signal and maximize the impact of the electron-nucleus program. Importantly, we demonstrate theoretically how to disentangle the effects from nuclear parton distribution functions and the ones that arise from strong final-state interactions between the jet and the nuclear medium.

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