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## Constraining the Gluon Content of Nuclei with an Electron-Ion Collider

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We present first results on the ability to constrain the gluon content of relativistic nuclei through novel light and heavy flavor jet and open heavy flavor observables at a future electron-ion collider (EIC), a \$1 billion dollar facility to be built in the United States. Using massive supercomputer processing, we compare predictions from a complete next-to-leading order Monte Carlo hard production and showering calculation for the jet and open heavy flavor spectra and correlations from multiple state of the art nuclear parton distribution parameterizations including full Hessian uncertainty analysis. Our work will provide input into EIC detector design and will guide future theoretical research into the observation of non-linear properties of quantum chromodynamics (QCD).

### Summary

We present first results into constraining gluon content of relativistic nuclei using predictions from next-to-leading order Monte Carlo calculations.

**Apply to be considered for a student award (Yes / No)?**

Yes

**Level for award (Hons, MSc, PhD, N/A)?**

Hons

**Main supervisor (name and email) and his / her institution**

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**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

Yes

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