



Contribution ID: 269

Type: Oral Presentation

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

Thursday, 6 July 2017 10:20 (20 minutes)

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

Dr. Will Horowitz; Senior Lecturer at the Department of Physics, University of Cape Town; Email: wa.horowitz@uct.ac.za

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

Yes

Primary author: Mr GUEORGUIEV, Victor (University of Cape Town)

Co-author: Dr HOROWITZ, William (University of Cape Town)

Presenter: Mr GUEORGUIEV, Victor (University of Cape Town)

Session Classification: Nuclear, Particle and Radiation Physics 2

Track Classification: Track B - Nuclear, Particle and Radiation Physics