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## High-Momentum Particle Production at RHIC, Fermilab, and LHC

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**Abstract content &nbsp; (Max 300 words)<br><a href="http://events.saip.org.za/getFile.py/target="\_blank">Formatting &<br>Special chars</a>**

We compute the distributions of charged particles at large transverse momenta in p-p, p-pbar, and pA collisions at RHIC, Fermilab, and LHC. Our calculations are performed using leading order perturbative quantum chromodynamics (pQCD), with both the usual parton distribution functions (PDFs) and nuclear PDFs, which encapsulate the modifications of the usual PDFs by the presence of multiple nucleons in a nucleus. We find that our results consistently describe the data across the three machines, multiple orders of magnitude in centre of mass energy  $\sqrt{s}$ , and over many orders of magnitude in transverse momentum. We then examine the transverse momentum dependence of the partonic contributions to these cross sections when using both the PDFs and nPDFs, which provides the critical input spectra for theoretical predictions for the suppression of charged particle spectra in heavy ion collisions.

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Yes

**Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD, N/A)?**

Hons

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

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

No

**Please indicate whether<br>this abstract may be<br>published online<br>(Yes / No)**

Yes

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