

# LA-UR-11-10617

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Title: Testing pQCD Factorization Breaking in Proton-Proton Collisions at the RHIC

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Intended for: Ettore Majorana International School of Subnuclear Physics,,  
2011-06-24/2011-07-03 (Erice, , Italy)



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*Title:* Testing pQCD factorization breaking in proton-proton collisions at the Relativistic Heavy Ion Collider

*Author(s):* Christine A. Aidala

*Intended for:* Presentation at the International School of Subnuclear Physics in Erice, Italy



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Testing pQCD factorization breaking in proton-proton collisions  
at the Relativistic Heavy Ion Collider”

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As our understanding of the strong interactions in hadronic collisions advances, interest in trying to describe more complex experimental observables using perturbative QCD is increasing. Among the recent additions to the arsenal of tools used in pQCD calculations are transverse-momentum-dependent parton distribution and fragmentation functions (TMDs). However, in 2010 it was claimed that factorization of hadronic interactions into parton distribution functions, fragmentation functions, and a partonic hard scattering cross section breaks down for hadroproduction of hadrons in processes explicitly sensitive to partonic transverse momentum. Ideas for testing this experimentally using proton-proton collisions at the Relativistic Heavy Ion Collider will be discussed.