

Dennis V. Perepelitsa, *Curriculum Vitae*
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Employment

Assistant Professor Physics Department, University of Colorado Boulder	2016 – <i>present</i>
Goldhaber Fellow Physics Department, Brookhaven National Laboratory	2013 – 2016

Education

Ph.D. Physics, Columbia University Area of study: Experimental nuclear physics and heavy ion collisions Thesis: <i>Inclusive jet production in ultrarelativistic proton-nucleus collisions</i> Thesis supervisor: Brian Cole	2014
M.Phil. Physics, Columbia University	2012
M.A. Physics, Columbia University Physics Department Preceptor (head Teaching Fellow)	2010
S.B. Physics, Massachusetts Institute of Technology Thesis: <i>(n,n'γ) Reactions in ^{63,65}Cu and Background in 0νββ Experiments</i> Thesis supervisor: Joseph Formaggio	2008
S.B. Mathematics w/ Computer Science, Massachusetts Institute of Technology	2008

Awards and Recognitions

D.O.E. Office of Science Early Career Award	2017
MIT Laboratory for Nuclear Science, Lee Grodzins Award	2016
Delivered the 508th Brookhaven Lecture	2015
Blavatnik Awards for Young Scientists, Regional Award Finalist	2015
ATLAS Thesis Award	2014
RHIC/AGS Thesis Award	2014
Robert Hofstadter diploma, Erice school “New Talent” award	2014
Goldhaber Distinguished Fellowship	2013

External Funding

“Searching for Parton Energy Loss in Quark-Gluon Plasma Droplets” D.O.E. Office of Science Early Career Research Program Award amount: \$750,000	Funding period: 9/1/2017 - 8/31/2022
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Scientific Service

- Co-Convenor, Jet Structure topical group 2016 – *present*
sPHENIX Collaboration, BNL-RHIC
- Co-Convenor, Heavy Ions Electroweak/Quarkonia working group 2016 – *present*
ATLAS Collaboration, CERN-LHC
- Local Organizing Committee, “13th International Workshop on High-pT Physics in the
RHIC/LHC Era” March 2019, Knoxville, TN
- International Organizing Committee, “9th International Conference on Hard and Electromag-
netic Probes of High-Energy Nuclear Collisions” October 2018, Aix-Les-Bains, France
- Organizer, “Novel tools and observables for jet physics in heavy-ion collisions”
CERN Theory Institute August 2017, CERN
- Organizer, 2017 National Nuclear Physics Summer School (NNPSS) July 2017, Boulder, CO
- Organizer, “Exotic and Highly Asymmetric Collisions at RHIC” Workshop
RHIC/AGS Annual Users Meeting June 2015, Upton, NY
- Presenter, “*b*-tagged Jet Performance and Physics”
sPHENIX Science Review by DOE Office of Nuclear Physics April 2015, Upton, NY
- Referee for Physics Letters B, European Journal of Physics C, Physics Review Letters
- Reviewer for the U.S. National Science Foundation, Polish National Science Foundation (NCN)

Teaching experience

- Classical Mechanics and Mathematical Methods (Phys2210) Lecturer Spring 2019
- General Physics II (Phys1120) Lecturer Spring 2018
- Classical Mechanics and Mathematical Methods (Phys2210) Lecturer Fall 2017
- General Physics II (Phys1120) TA/LA organizer, Backup lecturer Spring 2017
- General Physics II (Phys1120) Tutorial section leader Fall 2016

Media and Public Outreach

- Quoted in *Gizmodo* article, “Could the Large Hadron Collider Collide a Sandwich?”
Published online at www.gizmodo.com May 2018
- Quoted in *Gizmodo* article, “Biggest Quark Spotted in Whole New Way”
Published online at www.gizmodo.com December 2017
- ATLAS Physics Briefing, “Photon-tagged jet quenching in the quark-gluon plasma”
Published online at www.atlas.cern October 2017

Selected Publications with Substantial Role

- (Full list of 500+ refereed publications may be found at:
www.inspirehep.net/author/profile/D.V.Perepelitsa.1)

Reports, white papers, and proposals

Z. Citron et al (including [D.V.P.](#)), *Future physics opportunities for high-density QCD at the LHC with heavy-ion and proton beams*, CERN Yellow Report, hep-ph/1812.06772

H. A. Andrews et al (including [D.V.P.](#)), *Novel tools and observables for jet physics in heavy-ion collisions*, CERN Theory institute report, hep-ph/1808.03689

PHENIX Collaboration, *An Upgrade Proposal from the PHENIX Collaboration*, nucl-ex/1501.06197, submitted to the Department of Energy Office of Nuclear Physics

Public Preliminary results

ATLAS Collaboration, *Measurement of the fragmentation function for photon-tagged jets in $\sqrt{s_{\text{NN}}} = 5.02$ TeV Pb+Pb and pp collisions with the ATLAS detector*, ATLAS-CONF-2017-074, <https://cds.cern.ch/record/2285812>, in preparation for submission to Phys. Rev. Lett.

ATLAS Collaboration, *Prompt photon production in $\sqrt{s_{\text{NN}}} = 8.16$ TeV p+Pb collisions with ATLAS*, ATLAS-CONF-2017-072, <https://cds.cern.ch/record/2285810>, in preparation for submission to Phys. Lett. B

ATLAS Collaboration, *D meson production and long-range azimuthal correlation in 8.16 TeV p+Pb collisions with ATLAS*, ATLAS-CONF-2017-073, <https://cds.cern.ch/record/2285811>

ATLAS Collaboration publications

ATLAS Collaboration, *Measurement of photon-jet p_{T} correlations in 5.02 TeV Pb+Pb and pp collisions with ATLAS*, Phys. Lett. B 789 (2019) 167

ATLAS Collaboration, *Observation of centrality-dependent acoplanarity for muon pairs produced via two-photon scattering in Pb+Pb collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV with the ATLAS detector*, Phys. Rev. Lett. 121 (2018) 212301

ATLAS Collaboration, *Measurement of jet fragmentation in 5.02 TeV proton–lead and proton–proton collisions with the ATLAS detector*, Nucl. Phys. A 978 (2018) 65

ATLAS Collaboration, *Measurement of the dependence of transverse energy production at large pseudorapidity on the hard-scattering kinematics of proton–proton collisions at $\sqrt{s} = 2.76$ TeV with ATLAS*, Phys. Lett. B 756 (2016) 10

ATLAS Collaboration, *Measurement of the centrality dependence of the charged particle pseudorapidity distribution in proton-lead collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV with the ATLAS detector*, Eur. Phys. J. C 76 (2016) 199

ATLAS Collaboration, *Measurement of charged-particle spectra in Pb+Pb collisions at $\sqrt{s_{\text{NN}}} = 2.76$ TeV with the ATLAS detector at the LHC*, J. High. Energy. Phys. 1509 (2015) 050

ATLAS Collaboration, *Measurements of the nuclear modification factor for jets in Pb+Pb collisions at $\sqrt{s_{\text{NN}}} = 2.76$ TeV with the ATLAS detector*, Phys. Rev. Lett. 114 (2015) 072302

ATLAS Collaboration, *Centrality and rapidity dependence of inclusive jet production in $\sqrt{s_{\text{NN}}} = 5.02$ TeV proton–lead collisions with the ATLAS detector*, Phys. Lett. B 748 (2015) 392

PHENIX Collaboration publications

PHENIX Collaboration, *Measurements of multiparticle correlations in d+Au collisions at 200,*

62.4, 39, and 19.6 GeV and $p+Au$ collisions at 200 GeV and implications for collective behavior
Phys. Rev. Lett. 120 (2018) 062302

PHENIX Collaboration, *Centrality-dependent modification of jet-production rates in deuteron-gold collisions at $\sqrt{s_{NN}} = 200$ GeV*, Phys. Rev. Lett. 116 (2016) 122301

PHENIX Collaboration, *Centrality categorization for $R_{p(d)+A}$ in high-energy collisions*, Phys. Rev. C 90 (2014) 034902

Few-author publications

M. Alvioli, L. Frankfurt, D.V.P., M. Strikman, *Global analysis of color fluctuation effects in proton- and deuteron-nucleus collisions at RHIC and the LHC*, Phys. Rev. D 98 (2018) 071502

J.L. Nagle, R. Belmont, K. Hill, D.V.P., J. Orjuela Koop, P. Yin, Z-W. Lin, D. McGlinchey, *Are minimal conditions for collectivity met in $e+e-$ collisions?*, Phys. Rev. C 97 (2018) 024909

J.T. Mitchell, D.V.P., M.J. Tannenbaum, P. W. Stankus, *Tests of constituent-quark generation methods which maintain both the nucleon center of mass and the desired radial distribution in Monte Carlo Glauber models*, Phys. Rev. C 93 (2016) 054910

D. McGlinchey, J.L. Nagle, D.V.P., *Consequences of high- x proton size fluctuations in small collision systems at RHIC*, Phys. Rev. C 94 (2016) 024915

M. Alvioli, B. Cole, L. Frankfurt, D.V.P., M. Strikman, *Evidence for x -dependent proton color fluctuations in pA collisions at the CERN Large Hadron Collider*, Phys. Rev. C 93 (2016) 011902

D.V.P., P. Steinberg, *Calculation of centrality bias factors in $p+A$ collisions based on a positive correlation of hard process yields with underlying event activity*, nucl-ex/1412.0976, submitted to Phys. Rev. C

Other experimental publications

M. S. Boswell, S. R. Elliott, D.V.P., M. Devlin, N. Fotiades, R. O. Nelson, T. Kawano, and V. E. Guiseppe, *Neutron inelastic scattering in natural Cu as a background in neutrinoless double- β decay experiments*, Phys. Rev. C 87 (2013) 064607

V.E. Guiseppe, M. Devlin, S.R. Elliott, N. Fotiades, A. Hime, D.-M. Mei, R.O. Nelson, D.V.P., *Neutron inelastic scattering and reactions in natural Pb as a background in neutrinoless double-beta decay experiments*, Phys. Rev. C 79 (2009) 054604

Colloquia, Public Lectures and Symposia

9th Intl. Conf. on Hard and EM Probes of High-Energy Nuclear Collisions Sept. 2018, CERN Student Day Lecture, Physics of Small Collision Systems

Lee Grodzins Colloquium, MIT Laboratory for Nuclear Science Sept. 2016, Boston, MA
“Novel probes of the proton wavefunction through collisions with nuclei”

Blavatnik Science Symposium, New York Academy of Sciences July 2016, New York, NY
“Back to the Beginning: Using Man-Made Big Bangs to Study the Forces that Bind Matter Together”

Physics Colloquium, Penn State University February 2016, State College, PA
“Creating the hottest matter in the universe with nuclear collisions at the CERN LHC”

Physics Colloquium, University of Colorado Boulder February 2016, Boulder, CO
“Jet and photon probes of hot, dense nuclear matter at the Large Hadron Collider”

508th Brookhaven Lecture, Brookhaven National Laboratory October 2015, Upton, NY
“Using Nuclei to Catch Shape-Shifting Protons in the Act”

Invited Seminars

Columbia University, Physics Seminar March 2016, New York, NY
“New insights into dense and hot nuclear matter at RHIC and the LHC”

Penn State University, High-Energy Physics Seminar September 2015, State College, PA
“Exploring the hot, deconfined plasma created in ultrarelativistic nuclear collisions”

Brookhaven National Laboratory, Nuclear Physics Seminar January 2015, Upton, NY
“Calculation of centrality bias factors in p +A collisions”

Brookhaven Physics Department, Nuclear Physics Seminar December 2013, Upton, NY
“Centrality and rapidity dependence of inclusive jet production in p +Pb collisions”

Invited Workshop and Conference Talks

Electron Ion Collider User Group Meeting August 2018, Washington, D.C.
“Overview of results from p +A collisions”

Definition of Jets in a Large Background
“Heavy ion jet reconstruction in sPHENIX and lessons from the LHC” June 2018, BNL

13th International Workshop on High- p_T Physics in the RHIC/LHC Era
“Hard processes in small systems” October 2017, Bergen, Norway

Precision Spectroscopy of QGP Properties with Jets and Heavy Quarks (INT Program 17-1b)
“ p A (and AA and UPC) data at the LHC” May 2017, Seattle, WA

The XXVI International Conference on Ultrarelativistic Heavy-Ion Collisions (Quark Matter)
“Hard processes in small systems” February 2017, Chicago, IL

7th Workshop of the APS Topical Group on Hadronic Physics
“Jets in Heavy Ion Collisions” February 2017, Washington, D.C.

Fall Meeting of the APS Division of Nuclear Physics October 2016, Vancouver, Canada
“Overview and interpretations of centrality-dependent high- p_T jet production measurements at RHIC and the LHC”

Recent RHIC and LHC results and their implications for heavy ion physics in the 2020’s
“Recent and future jet and photon measurements” October 2016, Boston, MA

Proton and Photon-induced nuclear collisions at the LHC July 2016, Geneva, Switzerland
“Soft-hard correlations in jet production”

Fall Meeting of the APS Division of Nuclear Physics October 2015, Santa Fe, NM
“Prospects for jet measurements with sPHENIX and LHC Run 2”

New Progress in Heavy Ion Collisions October 2015, Wuhan, China
“Progress in Jet Tomography”

7th Int'l Conf. on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions
 "Hard probes of small systems" July 2015, Montreal, Canada

Large-Acceptance Jet and Upsilon Detector at RHIC Workshop June 2015, Upton, NY
 "The sPHENIX science case and reference design"

3rd Workshop on Jet Modification in the RHIC and LHC Era August 2014, Detroit, MI
 "Jet and high- p_T probes of $p+A$ collisions"

52nd Ettore Majorana International School of Subnuclear Physics June 2014, Erice, Italy
 "High- p_T probes of the partonic structure of heavy nuclei"

RHIC/AGS Annual Users Meeting Workshop on $p+A$ physics June 2014, Upton, NY
 "High- p_T phenomena in $p/d+A$ collisions"

LHC Physics Centre at CERN Workshop February 2014, Geneva, Switzerland
 "Centrality dependent $p+Pb$ measurements in ATLAS"

Talks on Behalf of Experimental Collaborations

Int'l. Conf. Hard & EM Probes High-Energy Nucl. Coll. Oct 2018, Aix-Les-Bans, France
 "Energy loss and modification of photon-tagged jets with ATLAS"

XXVII Int'l. Conf. on Ultra-Relativistic Nucleus-Nucleus Collisions May 2018, Venice, Italy
 "Photon-tagged measurements of jet quenching with ATLAS"

7th Int'l. Conf. on High Energy Physics in the LHC Era January 2018, Valparaiso, Chile
 "Charmonium production in HI collisions with ATLAS"
and "sPHENIX: Design, Status, Schedule"

5th Heavy Ion Jet Workshop August 2017, CERN
 "Overview of jet measurements by ATLAS and perspectives"

European Physical Society Conference on High Energy Physics July 2017, Venice, Italy
 "Electroweak bosons in heavy-ion collisions measured with the ATLAS detector"

Santa Fe Jets and Heavy Flavor Workshop February 2017, Santa Fe, NM
 "Measurements of jet production in pp and Pb+Pb collisions with the ATLAS detector"

33rd Winter Workshop on Nuclear Dynamics January 2017, Snowbird, UT
 "Status of jet quenching measurements with the ATLAS detector at the LHC"

5th International Conference on New Frontiers in Physics July 2016, Kolymbari, Greece
 "The physics program of sPHENIX: a new jet and upsilon detector at RHIC"

3rd Int'l. Conf. on Initial Stages in High-Energy Nuclear Collisions May 2016, Lisbon, Portugal
 "Reconstructed jet probes of small and large systems with the PHENIX detector"

6th Int'l. Workshop on High Energy Physics in the LHC Era January 2016, Valparaiso, Chile
 "Recent ATLAS results on jet suppression and modification in Pb+Pb collisions"
and "Progress in reconstructed jet measurements with the PHENIX detector at RHIC"

XXV Int'l. Conf. on Ultra-Relativistic Nucleus-Nucleus Collisions Sept. 2015, Kobe, Japan
 "New results on fully corrected dijet asymmetry in Pb+Pb collisions with ATLAS"

European Physical Society Conference on High Energy Physics July 2015, Vienna, Austria
 "Jet results in heavy ion collisions with the ATLAS experiment at the LHC"

- 7th Int'l. Conf. on the Physics and Astrophysics of the QGP Feb. 2015, Kolkata, India
 “Jet quenching measurements in lead-lead collisions at 2.76 TeV with the ATLAS detector”
- 31st Winter Workshop on Nuclear Physics January 2015, Keystone, CO
 “Jet physics opportunities and b -jet tagging within sPHENIX”
- 14th Zimanyi Winter School on Heavy Ion Physics December 2014, Budapest, Hungary
 “Jet probes of the nuclear and proton wavefunctions in proton–lead collisions with ATLAS”
- Hot Quarks '14 September 2014, Las Negras, Spain
 “High- p_T probes of proton-lead collisions with the ATLAS detector”
- XXIV Int'l. Conf. on Ultra-Relativistic Nucleus-Nucleus Coll. May 2014, Darmstadt, Germany
 “Centrality and rapidity dependence of inclusive jet production in p +Pb collisions w/ ATLAS”
- Int'l. Conf. Hard & EM Probes High-Energy Nucl. Coll. Nov. 2013, Stellenbosch, South Africa
 “Inclusive jet production in p +Pb collisions at 5.02 TeV with the ATLAS detector at the LHC”
- International Workshop on Low- X Physics May 2013, Rehovot, Israel
 “Centrality and jet performance in p +Pb collisions at 5.02 TeV with the ATLAS detector”
- 8th International Workshop on High p_T Physics at the LHC October 2012, Wuhan, China
 “Jet Suppression in PHENIX”
- XXIII Int'l. Conf. on Ultra-Relativistic Nucleus-Nucleus Coll. Aug. 2012, Washington, D.C.
 “Measurement of muon tagged open heavy flavor production in Pb+Pb collisions with ATLAS”
- 5th Int'l. Conf. on Hard & EM Probes of High Energy Nuclear Coll. May 2012, Cagliari, Italy
 “Reconstructed Jet Results in $p+p$, d +Au and Cu+Cu collisions at 200 GeV from PHENIX”