

Brian D. Nord

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Academic History	<i>Ph.D., Physics</i> 2010 University of Michigan Ann Arbor, MI Doctoral Thesis: <i>Virtual Sky Surveys and Multi-wavelength Investigations of Galaxy Clusters</i>
	<i>B.A., Physics</i> 2003 Johns Hopkins University Baltimore, MD
Employment History	Post-doctoral Research Associate 2012-present Fermi National Accelerator Laboratory Batavia, IL
	AGEP Post-doctoral Fellow 2010-2012 University of Michigan Ann Arbor, MI
	Research Associate 2004-2010 University of Michigan Ann Arbor, MI
	Research Associate and Experiment Design Leader Summer 2004 NASA Academy at Goddard Space Flight Center Greenbelt, MD
	Research Associate 2003-2004 Space Telescope Science Institute Baltimore, MD
	Research Associate Summer 2003 Fermi National Accelerator Laboratory Batavia, IL
Research Interests	Strong gravitational lensing and spectroscopy Survey simulation and design Dwarf galaxies: discovery and spectroscopy Multi-wavelength mass calibration of galaxy clusters Substructure detection in optically-selected galaxy clusters
Outreach Interests	Development of outreach strategies and methods for institutions and science collaborations Public talks and events Mentoring of students and teachers Writing and performance for videos and media in support of science Development of technology, art and games
Awards and Honors	Innovation Postdoctoral Fellowships (Declined) 2012

South African Department of Sci. and Tech. / National Research Foundation	
AGEP Post-Doctoral Fellowship University of Michigan	2010-2012
Rackham Merit Fellowship University of Michigan	2004-2010
Marcellus L. Wiedenbeck Teaching Award University of Michigan	2009
Jerry Soffen Leadership Award NASA Academy, Goddard Space Flight Center	2004
Trustee Scholarship Johns Hopkins University	2000-2003
Hess Memorial Scholarship Johns Hopkins University	2000-2003

Grants and Proposals	<i>Spectroscopic Confirmation and AO imaging Follow-Up of Dark Energy Survey Strong Lensing Systems and Spectra for Photometric Redshift Calibration Gemini Large and Long Proposal (Co-I)</i>	2014-present
	<i>The DECam Legacy Survey DECam Community Access Proposal (Co-I)</i>	2014-present
	<i>The Cosmic Nightly News American Physical Society Public Outreach Grant (\$7,000) (PI)</i>	2015-2016
	<i>Cosmic Machines University of Michigan Undergraduate Research Program (PI)</i>	2011-2012
	<i>August 23rd, 1966 University of Michigan Grant Opportunities in Collaborative Spaces (PI)</i>	2008
	<i>Ph.D Research Grant Michigan Space Grant Consortium (PI)</i>	2006, 2008

Public Outreach	Co-Chair Laboratory-wide Public Outreach Strategy Development, Fermilab	2015-present
	Co-Chair Dark Energy Survey Public Outreach Committee	2013-present
	Writer, Performer Fermilab and Symmetry Magazine Online	2013-present
	Creator, Editor, Writer Dark Energy Detectives Blog for DES (www.darkenergydetectives.org)	2013-present
	Speaker Student groups visiting Fermilab	2013-present
	Co-Organizer Adler After Dark: DES Public Event	October 2015
	Writer, Co-Creator Jeweled Net of the Vast Invisible: An Experience of Dark Matter Large-scale video installation, fly-through of Millennium simulation, University of Michigan	2013-2015
	Speaker Fermilab Summer Institute for Undergraduates	2014, 2015
	Speaker, Panelist Fermilab Open House	2014-2016

	Speaker Fermilab Ask-a-Scientist	2013, 2015
	Co-Creator August 23rd, 1966 Interactive art installation for exploring the cosmos, University of Michigan	2008-2009
	Co-Organizer Physics Olympiad, University of Michigan	May 2007
	Presenter Yes! Expo, Detroit, MI	2006, 2007
Mentorship	Steven Clayton (High School Teacher) Cosmology tutorials for classrooms and public, Fermilab	2015
	Hallie Gaitsch (High School Student) Strong Gravitational Lens Searches, Fermilab	2014
	Bishesh Khadka (High School Student) Mars Rover built with Lego Mindstorms, Fermilab	2013
	Kevin Tebbe (Undergraduate Student) Electro-mechanical representation of galaxy formation, University of Michigan	2011-2013
	Brandon Bloxsom, Michael Gapcynski, David Zilli (Undergraduate Students) Visual cosmological data on mobile applications, University of Michigan	2011-2012
	Avinash Adevala, Christine Rockwell (Undergraduate Students) Visualizing multi-wavelength data of galaxy clusters, University of Michigan	2011-2012
	Blythe Moreland (Undergraduate Student) Using network theory methods to explore galaxy cluster substructure, University of Michigan	2010-2012
	Zimu Li (Undergraduate Student) Testing astronomical filter uniformity, University of Michigan	2009-2011
	Colin Alber (Undergraduate Student) Design of astronomical filter test-stand, University of Michigan	2008-2009
Teaching Experience	Participant Post-doc Short Course on College Teaching Engineering, University of Michigan	2011
	Teaching Assistant Trainer and Mentor Physics Department, University of Michigan	2007-2009
	Substitute Lecturer Introductory Physics, University of Michigan	2007-2008
	Lead Instructor/Manager for Teaching Assistants Physics Department, University of Michigan	2006-2007
	Tutor Physics Department, University of Michigan	2005-2007
	Teaching Assistant: Grader and Lab Instructor Physics Department, University of Michigan	2005-2006
Professional Service	Co-Organizer DOE National Lab Day	2015-2016
	Lead Organizer Exhibition of DES-related images in Fermilab Art Gallery	2015-2016

Co-Convener ICHEP2016, Diversity and Inclusivity Session	2016
Principal Organizer Weekly Seminar, Fermilab Center for Particle Astrophysics	2013-2016
Member Fermilab Employee Advisory Group, Committee on Diversity and Inclusivity	2015-present
Member Fermilab 50th Anniversary Advisory and Planning Committee	2015-present
Member Fermilab Women's Initiative Employee Resource Group	2015-present
Representative Fermilab Users Executive Committee delegation to Washington, D.C	2015
Referee The Physics Teacher	2014-present
Referee Astronomy and Astrophysics	2010-present
Member American Astronomical Society	2008-present
Associate Member Michigan Center for Theoretical Physics, University of Michigan	2007-2012
Member Society of Women in Physics Local Chapter, University of Michigan	2006-2010
Organizer Research in Physics Teaching Journal Club, University of Michigan	2008-2009
Conference Organizer Society of Women in Physics, University of Michigan	2008
Creator, Organizer Physics Graduate Student Summer Symposium, University of Michigan	2007-2009

**Selected
Presentations:
Research**

- "Dark Energy Survey: Discovery of Gravitational Lenses"
Colloquium at York University; Toronto, Ontario; January 2016
- "Early Results from the Dark Energy Survey"
Colloquium at University of Illinois; Champaign-Urbana, IL; April 2015
- "Dark Energy Survey: Early Results"
Colloquium at University of Chicago/KICP; Chicago, IL; April 2014
- "We Can Realize the Cosmological Potential of Galaxy Clusters with Multi-wavelength Surveys"
Fermilab Astrophysics Seminar; Batavia, IL; January 2012
- "Joint SZ-Optical Cluster-finding"
Great Lakes Cosmology Workshops X at University of Chicago; Chicago, IL; June 2010
- "Our Accelerating Universe: The Discovery and Future of Dark Energy"
Colloquium at Albion College; Albion, MI; October 2009
- "A Cosmic Tug of War: The Connection Between Galaxy Clusters and Dark Energy"
Physics Graduate Student Summer Symposium at University of Michigan; Ann Arbor, MI; May 2009
- "Cosmic Evolution and Large-Scale Science"
Michigan Space Grant Consortium Annual Meeting; Ann Arbor, MI; October 2008
- "Selection Effects and Covariance in X-Ray Cluster Scaling Relations"
Virgo Consortium Meeting at Leiden University; Leiden, the Netherlands; January 2006

Selected Presentations: Outreach	<p>"Cosmic Acceleration and the Dark Forces Shaping Our Universe" York University Astronomy Society; Toronto, Ontario; July 2015</p> <p>"Cosmic Acceleration: How the Universe is Getting Away from Us" Fermilab Summer Institute for Undergraduates; Batavia, IL; July 2014</p> <p>"Nights of Future Past: A Journey Through Cosmic Structure, Large and Small" Chicago Astronomical Society; Adler Planetarium; Chicago, IL; December 2014</p> <p>"The Cosmic Nightly News" Fermilab Physics Slam Competition (Winner); Batavia, IL; November 2013</p> <p>"The Structure of Our Universe, the Shape of Our Knowledge" Fermilab Ask-A-Scientist; Batavia, IL; July 2013</p> <p>"The Shape of our Universe: The Complexity of Large-Scale Structure and Large-Scale Science" University of Michigan Saturday Morning Physics; Ann Arbor, MI; March 2012</p> <p>"Cosmic Engines: The Complex Evolution of Galaxies" University of Michigan Saturday Morning Physics; Ann Arbor, MI; March 2012</p>
Selected Posters: Research	<p>Nord, B., Buckley-Geer, E. J., Lin, H., Diehl, H. T., & Gaitsch, H. <i>Warped Universe: Analysis of Strong Lens Candidates from Early Dark Energy Survey Data.</i> in <i>American Astronomical Society (AAS #225) Meeting Abstracts, 225, January 2015.</i></p> <p>Schlegel, D. J., Blum, R. D., Castander, F. J., et al. <i>The Dark Energy Spectroscopic Instrument (DESI): The NOAO DECam Legacy Imaging Survey and DESI Target Selection.</i> in <i>American Astronomical Society (AAS #225) Meeting Abstracts, 225, January 2015</i></p> <p>Moreland, B., McKay, T., & Nord, B. <i>Network Methods Of Centering For The Maxbcg Clusters.</i> in <i>American Astronomical Society, AAS (#218), Bulletin of the American Astronomical Society, 43, May 2011.</i></p> <p>Nord, B., Evrard, A.E., Rasia, E., Stanek, R. <i>The Many Faces of Galaxy Clusters: Mock Observations of Cluster Populations in Multiple Wavelengths.</i> in <i>American Astronomical Society, AAS (#212), Bulletin of the American Astronomical Society, 40, May 2008.</i></p> <p>Nord, B., & Evrard, A. E. <i>Selection Effects in Galaxy Cluster Surveys: What Do We Learn from Observed Scaling Relations?</i> in <i>American Astronomical Society, AAS (#209), Bulletin of the American Astronomical Society, 38, January 2007.</i></p> <p>Stanek, R., Evrard, A., Boehringer, H., Schuecker, P. & Nord, B. <i>The X-Ray Luminosity-Mass Relation for Local Clusters of Galaxies.</i> in <i>AAS/AAPT Joint Meeting, American Astronomical Society (#209), Bulletin of the American Astronomical Society, 38, January 2007.</i></p> <p>Nord, B., Stanek, B., Rasia, E., et al. <i>Influence of Covariance and Selection on Cluster X-ray Scaling Relations.</i> in <i>Proceedings of X-ray Surveys, Evolution of Accretion, Star-Formation and the Large Scale Structure, July 2007.</i></p>
Patents	<p>Cosmic Shuffleboard (pending) 2015-2016 Gaming device to demonstrate and teach gravitational lensing, Fermilab</p>
Community Service	<p>President, co-founder 2010-2012 MISSION, Inc.; Non-profit co-managed with persons without homes Ann Arbor, MI</p>
Technical Skills	<p>Observing Experience Dark Energy Camera on the Blanco 4m at CTIO (2011 - present; ~50 nights) Multi-object spectroscopy on Gemini 8m at Cerro Pachon (2014-2015; ~ 15 nights)</p>

Analysis Techniques

Multi-object spectroscopy reduction

Computation Skills

Proficient: Python, html, LaTeX, WordPress, IDL, IRAF

Familiar: C/C++, Fortran, MySQL, bash, cshell, MPI, OMP, CSS

Collaborators

Dark Energy Survey ('Participant' and 'Builder')

Research

A. Amara, ETH Zurich; B. Basset, South African Astronomical Observatory; T. Biesiadzinski, University of Michigan; L. Buckley-Geer, Fermilab; D.L. DePoy, University of Texas at Austin; T. Diehl, Fermilab; A. Drlica-Wagner, Fermilab; B. Erickson, University of Michigan; A.E. Evrard, University of Michigan; A. Heavens, University of Edinburgh; H. Lin, Fermilab; W. Lorenzon, University of Michigan; C. Miller, University of Michigan; E. Rasia, University of Michigan; E. Rozo, KICP, University of Chicago; E.S. Rykoff, Lawrence Berkeley National Laboratory; M. Schubnell, University of Michigan; M. Seikel, University of Cape Town; J. Simon, Carnegie Observatories; J. Song, University of Michigan; G. Tarlé, University of Michigan; D. Tucker, Fermilab; R.H. Wechsler, Stanford University; H.Y. Wu, University of Michigan.

Education and Public Outreach

M. Bardeen, Fermilab (Education and Public Outreach); L. Biron, Fermilab (Communications); J. Cogswell, University of Michigan (Art); J. Eaton, University of Michigan (Computer Science); R. Hahn, Fermilab (Visual Media); I. Krass, Fermilab (Visual Media); D. Lincoln, Fermilab; S. Pasero, Fermilab (Education and Public Outreach); L. Quigg, Fermilab (Education and Public Outreach); K. Romer, University of Sussex; S. Rush, University of Michigan (Music); D. Lincoln, Fermilab; A. Salles, Fermilab (Communications); J. Schultz, Fermilab (Visual Media); C. Stoughton, Fermilab; G. Tarlé, University of Michigan; R.C. Wolf, University of Pennsylvania; Y. Zhang, University of Michigan;