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Education	**Ph.D., Physics** University of Michigan (UofM)	2010
	B.A., Physics Johns Hopkins University (JHU)	2003
Professional Experience	**The Dark Energy Survey** (DES)	2007 - Present
	The Dark Energy Spectroscopic Instrument (DESI)	2013 - Present
	NASA Academy (Goddard Space Flight Center)	2004
	Space Telescope Science Institute	2004
	Fermi National Accelerator Laboratory	2003
Research Interests	**Dwarf Galaxies: Spectroscopy**	2015
	Strong Gravitational Lensing and Spectroscopy	2014 - Present
	Spectroscopic Experiment and Design	2012 - Present
	Multi-wavelength Mass Calibration in Galaxy Clusters	2010 - 2012
	Substructure Detection in Optically-Selected Galaxy Clusters	2010 - 2012
	Multi-wavelength Simulation of Cosmological Surveys	2004-2010
Professional Service	**Employee Advisory Group**, *Fermilab*	2015 - Present
	50th Anniversary Advisory Committee, *Fermilab*	2015 - Present
	Referee, *Astronomy and Astrophysics*	2010 - Present
	Referee, *The Physics Teacher*	2014 - Present
	Junior Member, American Astronomical Society	2008 - Present
	Associate Member, Michigan Center for Theoretical Physics	2007 - Present
	Member, UofM Society of Women in Physics	2007 - Present
	Conference Co-Organizer, UofM Society of Women in Physics	2008
	Organizer, Research in Physics Teaching Journal Club	2008 - 2009
Public Outreach	**EPO Strategy and Organization**, *Fermilab*	2015 - Present
	Co-Chair Dark Energy Survey EPO Committee	2013 - Present
	Writer, Performer Fermilab and Symmetry Magazine Online Videos	2013 - Present
	Writer, Editor, Dark Energy Detectives Blog for DES	April 2013 - Present
	Chair, Dark Energy Survey Outreach Committee	November 2014 - Present
	Writer, Co-Investigator Art of Cosmology Exhibit	2013 - Present
	Jeweled Net of the Vast Invisible: An Experience of Dark Matter	
	Video installation of fly-through of Millennium cosmological simulation with original music	
	Speaker, Student groups visiting Fermilab	bi-weekly, 2013 - Present
	Speaker, Chicago Astronomical Society (Adler Planetarium, Chicago)	December 2014
	Co-author, "The Expanding Universe: Dark Energy" The Physics Teacher Magazine, August	

2014

Speaker, Fermilab Summer Institute for Undergraduates (Batavia, IL)	July 2014
Speaker, Fermilab Open House (Batavia, IL)	April 2014
Writer, Speaker, Fermilab Physics Slam Competition (winner)	November 2013
Speaker, Fermilab Ask-A-Scientist (Batavia, IL)	April 2013
Speaker, UofM Saturday Morning Physics (Ann Arbor, MI)	March 2010
Speaker, Science activities for K-12 students (Ann Arbor, MI)	Summer 2008 - Present
Founder, UofM Physics Graduate Student Summer Symposium	Summer 2007 - 2009
Co-Organizer, UofM Physics Olympiad	May 2007
Presenter, Yes! Expo (Detroit, MI)	2006, 2007

Students Mentored

Fermi National Accelerator Laboratory (High School Students)

Strong Gravitational Lens Search and Analysis	2013 - 2014
Mars Rover Built from Lego Mindstorms (A QuarkNet Project)	Summer 2013

University of Michigan (Undergraduates)

Cosmic Machines	2012 - Present
Visualizing Galaxy Simulations in Planetarium Domes	2012
Bringing the Cosmos to the World with Mobile Device Applications	2011 - 2012
Visualizing the Cosmos – Virtual Observations of Galaxy Clusters	2011 - 2012
Network Analyses of Galaxy Cluster Substructure	2010 - 2012

Selected Talks

Colloquium — UIUC - April 2015
Dark Energy Survey: Discovery of Gravitational Lenses

Colloquium — U. Chicago/KICP - April 2014
Dark Energy Survey: Early Results

Fermilab Summer Institute for Undergraduates — Fermilab - July 2014/15
Cosmic Acceleration: How the Universe is Getting Away from Us.

Chicago Astronomical Society Meeting — Adler Planetarium, Chicago - December 2014
Nights of Future Past: A Journey Through Cosmic Structure, Large and Small

Ask A Scientist — Fermilab - July 2013
The Structure of Our Universe, the Shape of Our Knowledge

UofM Saturday Morning Physics (I) — Ann Arbor, MI - March, 2012
The Shape of our Universe: The Complexity of Large-Scale Structure and Large-Scale Science

UofM Saturday Morning Physics (II) — Ann Arbor, MI - March, 2012
Cosmic Engines: The Complex Evolution of Galaxies

Invited Talk — Fermilab - January 2012
We Can Realize the Cosmological Potential of Galaxy Cluster Surveys with Multi-wavelength Surveys

Dark Energy Survey Collaboration Meeting — U. of Portsmouth - July 2011
Joint SZ-Optical Cluster-Finding in Simulations: First Results

Great Lakes Cosmology Workshops X — U. of Chicago - June 2010
Joint SZ-Optical Cluster-finding

Dark Energy Survey Collaboration Meeting — Rio de Janeiro, Brazil - May 2009
Mock Skies for SZ-Optical Cluster Finding: Lightcone and Sky Map Construction

Invited Talk — Albion College - Oct. 2009

Our Accelerating Universe: The Discovery and Future of Dark Energy

Michigan Space Grant Consortium Annual Meeting — UofM - Oct. 2008
Cosmic Evolution and Large-Scale Science

Great Lakes Cosmology Workshops, VIII — The Ohio State U. - June 2007
Mock Skies for Multi-wavelength Cluster Population Analysis

Cosmic Cartography: Mapping the Universe from the Big Bang to the Present — Chicago, IL. - Dec. 2006
Covariance in Galaxy Cluster Scaling Relations

Virgo Consortium Meeting — Leiden U. - Jan. 2006
Selection Effects and Covariance in X-Ray Cluster Scaling Relations

Teaching Experience

Post-doc Short Course on College Teaching in Science and Engineering — 2011
Teaching Assistant Trainer and Mentor — 2007 - 2009
Lead Instructor/Manager for Teaching Assistants — 2006 - 2007
Teaching Assistant: Grader and Lab Instructor — 2005 - 2006

Refereed Journal Articles

Nord, B., , Buckley-Geer, L., Lin, H., Diehl, H.T., Gaitsch, H., and the Dark Energy Survey Collaboration. Strong Gravitational Lenses Discovered in the Dark Energy Survey Science Verification Data. In Prep.

Nord, B., Amara, A., Réfrégier, A., Gamper, La., Gamper, Lu., Hambrecht, B., Chang, C., Forero-Romero, J. E., Serrano, S., Cunha, C., Coles, O., Nicola, A., Busha, M., Bauer, A., Saunders, W., Jouvel, S., Kirk, D., Wechsler. R. SPOKES: an End-to-End Simulation Facility for Spectroscopic Cosmological Surveys. 2014. Submitted to Journal of Astronomy and Computing.

Melchior, P.; Suchyta, E., Huff, E., Hirsch, M., Kacprzak, T., Rykoff, E., Gruen, D., Armstrong, R., Bacon, D., Bechtol, K., Bernstein, G. M., Bridle, S., Clampitt, J., Honscheid, K., Jain, B., Jouvel, S., Krause, E., Lin, H., MacCrann, N., Patton, K., Plazas, A., Rowe, B., Vikram, V., Wilcox, H., Young, J., Zuntz, J., Abbott, T., Abdalla, F., Allam, S. S., Banerji, M., Bernstein, J. P., Bernstein, R. A., Bertin, E., Buckley-Geer, E., Burke, D. L., Castander, F. J., da Costa, L. N., Cunha, C. E., Depoy, D. L., Desai, S., Diehl, H. T., Doel, P., Estrada, J., Evrard, A. E., Fausti Neto, A., Fernandez, E., Finley, D. A., Flaugher, B., Frieman, J. A., Gaztanaga, E., Gerdes, D., Gruendl, R. A., Gutierrez, G. R., Jarvis, M., Karliner, I., Kent, S., Kuehn, K., Kuropatkin, N., Lahav, O., Maia, M. A. G., Makler, M., Marriner, J., Marshall, J. L., Merritt, K. W., Miller, C. J., Miquel, R., Mohr, J., Neilsen, E., Nichol, R. C., **Nord, B.**, Reil, K., Roe, N. A., Roodman, A., Sako, M., Sanchez, E., Santiago, B. X., Schindler, R., Schubnell, M., Sevilla-Noarbe, I., Sheldon, E., Smith, C., Soares-Santos, M., Swanson, M. E. C., Sypniewski, A. J., Tarle, G., Thaler, J., Thomas, D., Tucker, D. L., Walker, A., Wechsler, R., Weller, J., Wester, W. Mass and galaxy distributions of four massive galaxy clusters from Dark Energy Survey Science Verification data. 2014. arXiv:1405.4285. Submitted to MNRAS.

Heavens, A. F., Seikel, M., **Nord, B.**, Aich, M., Bouffanais, Y., Bassett, B. A., Hobson, M. P. Generalized Fisher matrices. 2014 MNRAS 445: 1687-93.

Rykoff, E. S., Rozo, E., Busha, M. T., Cunha, C. E., Finoguenov, A., Evrard, A., Hao, J., Koester, B. P., Leauthaud, A., **Nord, B.**, Pierre, M., Reddick, R., Sadibekova, T., Sheldon, E. S., Wechsler, R. H. redMaPPer. I. Algorithm and SDSS DR8 Catalog. 2014. Apj 785: 33.

Lincoln, D., **Nord, B.**, . The Expanding Universe: Dark Energy. *The Physics Teacher*, 52: 337 (2014).

Bieszadinski, T., McMahon, J., Miller, C., **Nord, B.**, Shaw, L. Impact of Systematics on SZ-Optical Scaling Relations. 2011. Apj 757: 6.

Rozo, E., Rykoff, E., Koester, B., **Nord, B.**, Wu, H., Evrard, A. E., Wechsler, R. 2011. Extrinsic source of scatter in the richness-mass relation of galaxy clusters. 2011. ApJ 740: 53.

Tarlé, G., Bigelow, B., Boprie, D., Cooper, C., Dede, E., Lorenzon, W., **Nord, B.**, , Schubnell, M., Weaverdyck, C., "Large format filter changer mechanism for the dark energy survey." *Modern Technologies in Space- and Ground-based Telescopes and Instrumentation.*, E. Atad-Ettedgui, D. Lemke, Ed., *Proc SPIE* **7739**, 77393L-77393L-11 (2010).

Diehl, H. Thomas (DECam/DES Collaboration), "Testing the Dark Energy Camera on a telescope simulator." *Ground-based and Airborne Instrumentation for Astronomy III.*, I.S. McLean, S.K. Ramsay, H. Takami, Ed., *Proc SPIE* **7735**, 77353I-77353I-10 (2010).

Flaugher, B.L. (DECam/DES Collaboration), "Status of the dark energy survey camera (DECam) project ." *Ground-based and Airborne Instrumentation for Astronomy III.*, I.S. McLean, S.K. Ramsay. H. Takami, Ed., *Proc SPIE* **7735**, 77350D-77350D-14 (2010).

Elebert, P., Reynolds, M. T., Callanan, P.J., Hurley, D.J., Ramsay, G., Lewis,F., Russell, D.M., **Nord, B.**, Kane, S.R., DePoy, D.L., Hakala, P. 2009. Optical spectroscopy and photometry of SAXj1808.4-3658 in outburst. MNRAS 395: 884-894.

Depoy, D.L., and the Dark Energy Survey Calibration Team for the Dark Energy Survey Calibration, "The Dark Energy Camera (DECam)," in *Ground-based and Airborne Instrumentation for Astronomy II*, I.S. McLean, Mark M. Casali, Ed., *Proc. SPIE* **7014**, 1-9 (2008).

Rykoff, E.S., Evrard, A.E., Mckay, T.A., Becker, M.R., Johnston, D.E., Koester, B.P., **Nord, B.**, Rozo, E., Sheldon, E.S., Stanek, R., Wechsler, R.H. 2008. The $L_x - M$ relation of clusters of galaxies. MNRAS 387: L28-L32.

Nord, B., Stanek, R., Rasia, E., Evrard, E., 2008. Effects of selection and covariance on X-ray scaling relations of galaxy clusters. MNRAS 383: L10-L14.

Stanek, R., Evrard, A.E., Bohringer, H., Schuecker, P., **Nord, B.** 2006. The X-ray luminosity-mass relation for local clusters of galaxies. ApJ 648: 956-968.

T. Akimoto, (CDF Collaboration). 2006. The CDF RunIIb silicon detector: design, preproduction, and performance. Nucl. Instr. and Meth. A 556: 459-481.

Ohl, R.G., Connelly, J.A., Boyle, R.F., Derro, R.J., Fitzgerald, D.L., Greenhouse, M.A., Madison, T.J., Mentzell, J.E., **Nord, B.**, Sparr, L.M., Hylan, J.E.,Knute, R., MacKenty, J.W., "Integration, testing and performance of the Infrared Multi-Object Spectrometer," *Ground-based Instrumentation for Astronomy*, A.F.M. Moorwood, M. Iye, Ed., *Proc SPIE* **5492**, 1114-1122 (2004).

Authored Books

Lorenzon, W.L., **Nord, B.** Percha, B.L., Introductory Mechanics Laboratory Manual. Michigan: Hayden/MacNeill, 2007.

Conference Proceedings

Rhodes, J., Allen, S., Benson, B. A., Chang, T., de Putter, R., Dodelson, S., Dor, O., Honscheid, K., Linder, E., Mnard, B., Newman, J., **Nord, B.**, Rozo, E., Rykoff, E., Vallinotto, A., Weinberg, D. Exploiting cross correlations and joint analyses. 2015. Astroparticle Physics, 63: 42-54

Kuehn, K., Kuhlmann, S., Allam, S., Annis, J. T., Bailey, T., Balbinot, E., Bernstein, J. P., Biesiadzinski, T., Burke, D. L., Butner, M., Camargo, J. I. B., da Costa, L. A. N., DePoy, D., Diehl, H. T., Dietrich, J. P., Estrada, J., Fausti, A., Gerke, B., Guarino, V., Head, H. H., Kessler, R., Lin, H., Lorenzon, W., Maia, M. A. G., Maki, L., Marshall, J., **Nord, B.**, Neilsen, E., Ogando, R. L. C., Park, D., Peoples, J., Rastawicki, D., Rheault, J.-P., Santiago, B., Schubnell, M., Seitzer, P., Smith, J. A., Spinka, H., Sypniewski, A., Tarle, G., Tucker, D. L., Walker, A. R., Wester, W. PreCam: A Precursor Observational Campaign for Calibration of the Dark Energy Survey. 2013. Publications of the Astronomical Society of the Pacific, 125: 409-21.

Moreland, Blythe, McKay, T., **Nord, B.** "Network Methods Of Centering For The Maxbcg Clusters," American Astronomical Society, AAS Meeting #218, 2011. Bulletin of the American Astronomical Society 43 (2011): 408.23.

Nord, B., Evrard, A.E., Rasia, E., Stanek, R., "The Many Faces of Galaxy Clusters: Mock Observations of Cluster Populations in Multiple Wavelengths," American Astronomical Society, AAS Meeting #212, 2008. Bulletin of the American Astronomical Society 40 (2008): 219.

Nord, B., Stanek, R., Evrard, A.E., 2007, "Selection Effects in Galaxy Cluster Surveys: What Do We Learn from Observed Scaling Relations?" AAS/AAPT Joint Meeting, American Astronomical Society Meeting #209, 2007. Bulletin of the American Astronomical Society, 2007, 196.

T. Akimoto, (CDF Collaboration). 2004. CDF run IIb silicon detector: Electrical performance and deadtime-less operation. IEEE Trans.Nucl.Sci. 51 (2004) 987-993.

K. Hara, (CDF Collaboration). 2004. Sensors for the CDF Run2b silicon detector. IEEE Trans.Nucl.Sci. 51 (2004) 1546-1554.

R. Lu, (CDF Collaboration). 2004. CDF Run IIb silicon: Stave design and testing. IEEE Trans.Nucl.Sci. 51 (2004) 2209-2214.

S. Behari, (CDF Collaboration). 2004. CDF Run IIb Silicon Vertex Detector DAQ Upgrade. IEEE Trans.Nucl.Sci. 51 (2004) 3047-3054.

N. Bacchetta, (CDF Collaboration). 2003. CDF Run IIb silicon vertex detector DAQ upgrade. FERMILAB-PUB-03-376-E.

Grants

American Physical Society 2015
Cosmic Nightly News

University of Michigan UROP Research Funding 2012
Cosmic Machines

University of Michigan UROP Research Funding 2011
Bringing Cosmos to the World

GROCS Grant 2009
August 23, 1966: When look back from the stars, what do we see?

	Michigan Space Grant	2006, 2008
	Michigan Center for Theoretical Physics Grant for Outreach	2008, 2009

Fellowships, Scholarships, Honors	**DST/ NRF Innovation Postdoctoral Fellowships (South Africa)** [Declined]	2012
	Michigan AGEP Post-Doctoral Fellowship	2010 - 2012
	Rackham Merit Fellowship (UofM)	2004 - 2010
	Marcellus L. Wiedenbeck Teaching Award (UofM)	2009
	Jerry Soffen Leadership Award (NASA)	2004

Collaborators

Education and Public Outreach

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

Research

L. Baruah, University of Sussex; B. Basset, South African Astronomical Observatory; M.R. Becker, University of Chicago; T. Biesiadzinski, University of Michigan; M. Busha, University of Zurich; D.L. DePoy, University of Texas at Austin; B. Erickson, University of Michigan; A.E. Evrard, University of Michigan; W. Fang, University of Michigan; Y. Fantaye, ICTP; A. Heavans, University of Edinburgh; K. Kadota, University of Michigan; B.P. Koester, University of Michigan; W. Lorenzon, University of Michigan; C. Miller, University of Michigan; A. Paranjape, ICTP; E. Rasia, University of Michigan; K. Romer, University of Sussex; E. Rozo, KICP, University of Chicago; E.S. Rykoff, Lawrence Berkeley National Laboratory; M. Schubnell, University of Michigan; L. Shaw, Yale University; R. Sheth, ICTP; M. Seikel, University of Cape Town; J. Song, University of Michigan; G. Tarlé, University of Michigan; D. Tucker, Fermi National Accelerator Laboratory; R.H. Wechsler, Stanford University; H.Y. Wu, University of Michigan.

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

Community Service	**President and co-founder**, Board of Directors, MISSION, Inc.	March 2010 - March 2012
	Panelist: AGEP Community, Education and Career Panel	March, 2008