

David W. Gerdes

Arthur F. Thurnau Professor of Physics
Chair, Department of Physics
Professor of Astronomy

University of Michigan
Department of Physics
2477 Randall Laboratory
450 Church St.
Ann Arbor, MI 48109-1040
Phone: (734) 647-3807
Fax: (734) 936-6529
E-mail: gerdes@umich.edu

Education

1992 Ph.D., Physics, University of Chicago
Dissertation: "Search for $W' \rightarrow e\nu$ and $W' \rightarrow \mu\nu$ in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV"
Advisor: Melvyn Shochet

1987 Master of Advanced Study in Mathematics, Cambridge University, England

1986 B.A. *summa cum laude*, Physics, Carleton College

Professional Experience

2019- Chair, Department of Physics, University of Michigan

2016- Professor of Astronomy, University of Michigan

2016-19 Associate Chair for Undergraduate Education, Department of Physics

2008- Professor of Physics, University of Michigan

2007- Arthur F. Thurnau Professor, University of Michigan

2002-08 Associate Professor of Physics, University of Michigan

2004 Guest Scientist, Lawrence Berkeley National Laboratory

2004 Visiting Scientist, Laboratoire d'Astrophysique de Marseille

1998-2002 Assistant Professor of Physics, University of Michigan

1998-99 Visiting Assistant Professor, Department of Physics and Astronomy, Johns Hopkins University

1996-98 Assistant Professor, Department of Physics and Astronomy, Johns Hopkins University

1994 Lecturer in Physics, University of Michigan

1992-95 Research Fellow, Department of Physics, University of Michigan

1990-92 Research Assistant, Department of Physics, University of Chicago

Awards and Honors

2015 Fellow of the American Physical Society

2012 Provost's Teaching Innovation Prize (with T. McKay, A. Evrard)

2007 Arthur F. Thurnau Professorship (for "outstanding contributions to undergraduate education")

2006 University Undergraduate Teaching Award

2005-07 Honors Faculty Fellow

2003 Excellence in Education Award, College of Literature, Science, and the Arts

1997-2003 CAREER Award, National Science Foundation

1996-98 Outstanding Junior Investigator Award, U.S. Department of Energy

1987-91 National Science Foundation Graduate Fellowship

1987 General Electric Foundation Graduate Fellowship

1986-87 Winston Churchill Foundation Scholarship (to Cambridge University, England)

Professional Memberships

American Physical Society
American Astronomical Society
American Association of Physics Teachers
Phi Beta Kappa
Sigma Xi

Professional Activities and Service

2019 Session Chair: Detecting and Protecting the Earth from Earth-Crossing Asteroids
American Physical Society April Meeting, Denver, CO

2019- Member, New Horizons Kuiper Extended Mission Science Team

2018- Co-I, Deep Ecliptic Exploration Project (DEEP), awarded 47 nights on DECam

2018 - Member, NASA Small Bodies Assessment Group Steering Committee

2018 NASA proposal review panelist

2017 - Member, LSST Solar System Science Collaboration

2016-17 Co-Investigator, BLanco Imaging of the Southern Skies (BLISS) Survey

2016 PI: ALMA Director's Discretionary Proposal 2015.A.00023.S, "Measuring the Size of a Distant New Dwarf Planet Candidate", 6 hours awarded

2015-19 Co-chair, Dark Energy Survey Transients and Moving Objects science working group

2014 DoE Institutional Review of Brookhaven National Laboratory

2014- Proposal reviewer, Natural Sciences and Engineering Research Council of Canada

2012-16 DES Run Manager (on-site at CTIO: Nov. 2012, Jan. 2013, Jan. 2014, Jan. 2015, Dec. 2015)

2012- Referee, MNRAS

2010-2018 Member, BigBOSS / DESI Collaboration

2011-13 Member, PandaX Collaboration

2010 NSF external review panelist, Michigan State University high energy / particle astrophysics group

2009-10 Co-chair, Project Director Search Committee, Dark Energy Survey Collaboration

2009 NSF review panel, LHC2009

2008-09 AAPT 2009 Summer Meeting Local Organizing Committee

2008-2015 Chair, Membership Committee, Dark Energy Survey Collaboration

2007 NSF review panel, Experimental Particle Physics 2008

2006 "Perception of the Extreme Unseen," artistic collaboration with physicist Gordon Kane and artist Jan-Henrik Andersen. An illustration from this work was featured on the cover of the National Research Council's EPP2010 report.

1990-2009 Member, the Collider Detector at Fermilab (CDF) Collaboration

2005- Member, Management Committee, Dark Energy Survey Collaboration

2005- Member, Dark Energy Survey Collaboration (DES) (Michigan Co-PI)

2003-2009 Member, SuperNova/Acceleration Probe (SNAP) Collaboration

2006-2008 Sub-project leader, CDF Analysis Diskpool project

2006 External Reviewer for Dept. of Energy, Indiana University High-Energy Physics grant

2005 Co-organizer, DES Collaboration Meeting, Ann Arbor, Oct. 28-29, 2005.

2005 Co-organizer, Top Quark Symposium, University of Michigan, April 7-8, 2005

2005 Reviewer, Department of Energy Outstanding Junior Investigator proposals

2003-05 Referee, Nuclear Instruments and Methods

2002-2014 Member, Michigan Center for Theoretical Physics

2002 Co-convener, CDF W +jets working group

2002 Winston Churchill Foundation, national scholarship selection committee

2002-04 Member, American Linear Collider Physics and Detector Executive Committee

2001-03 Member, Fermilab Linear Collider Physics and Detector Advisory Committee

2001 Co-convener, Working Group on Electroweak Symmetry Breaking, Snowmass 2001: The Future of Particle Physics. Snowmass, Colorado, June 30-July 21, 2001

2001 Member, National Science Foundation CAREER proposal review committee for experimental particle physics

2000 Local Organizing Committee, International Workshop on the Physics and Technology of Linear e^+e^- Colliders, Fermilab, October 2000

2000	Organizing Committee, Workshop on Physics and Detectors for Future e^+e^- Colliders, Berkeley, CA, March 2000
1999-2000	Co-leader, CDF Tracking Group
1999	Local Organizing Committee, Physics In Collision Conference, Ann Arbor, MI, June 1999
1999	Organizing Committee, Workshop on Physics and Detectors for Future Electron-Positron Linear Colliders, Ann Arbor, MI, March 1999
1998-99	International Organizing Committee, Physics and Experiments with Future Linear e^+e^- Linear Colliders, Barcelona, Spain, April-May 1999
1998-2003	Leader, Working Group on Top Quark Physics, North American Study of Physics and Detectors for Future Electron-Positron Linear Colliders
1998-99	Member, Fermilab National Accelerator Laboratory Director search committee
1998	Working group leader, U.S. Department of Energy "Energy Research Themes and Strategic Directions" planning group
1998-	Proposal reviewer, U.S. Department of Energy
1997	Member, National Science Foundation CAREER proposal review committee for experimental particle physics
1997	Member, National Science Foundation Research Experience for Undergraduates (REU) proposal review committee
1997-	Referee, Physical Review D
1997-98	Chair, Fermilab Users Executive Committee
1996-99	Member, Fermilab Users Executive Committee
1996-	Proposal Referee, National Science Foundation
1996-98	CDF Computing and Software Review Committee
1996	Top Quark Physics working group leader, Workshop on Future Directions for High Energy Physics, Snowmass, Colorado
1994-95	Co-leader, CDF B-tag Working Group
1992-2006	Godparent (CDF internal reviewer) for numerous physics analyses

Sponsored Research

2017-20	Search and Discovery in the trans-Neptunian Solar System using the Dark Energy Survey (PI, co-I Fred Adams), NASA Solar System Observations, \$474k
2015-18	Collaborative Research: Characterizing the Trans-Neptunian Solar System with the Dark Energy Survey (PI, co-I Fred Adams), NSF Astronomy, \$95,940
2015-16	High Energy Physics, Task I: Dark Energy (Co-PI, with G. Tarlé), \$510k
2014-15	High Energy Physics, Task I: Dark Energy (Co-PI, with G. Tarlé; co-I's G. Evrard and T. McKay). U.S. Department of Energy, \$475,000
2013-14	High Energy Physics, Task I: Dark Energy (Co-PI, with G. Tarlé; co-I's G. Evrard and T. McKay). U.S. Department of Energy, \$450,000
2012-13	High Energy Physics, Task I: Dark Energy (Co-PI, with G. Tarlé; co-I's G. Evrard and T. McKay). U.S. Department of Energy, \$445,000
2011-12	High Energy Physics, Task I: Dark Energy (Co-PI, with G. Tarlé; co-I's G. Evrard and T. McKay). U.S. Department of Energy, \$425,000 (11-months)
2010-11	High Energy Physics, Task I: Dark Energy (Co-PI, with G. Tarlé; co-I's W. Lorenzon and T. McKay): Bridge Funding, U.S. Department of Energy, \$175,000.
2009-10	High Energy Physics, Task I: Dark Energy (Co-Investigator, with G. Tarlé, W. Lorenzon, and T. McKay), U.S. Department of Energy, \$485,000
2010-11	Whitaker Stage I Award: Institutionalizing Assessment as Part of Introductory Course Reform in Physics (with T. McKay, G. Evrard), University of Michigan, \$15,000.
2009-10	DECam Fermilab funding for research and development (PI), Fermilab, \$45,025.
2009-10	High Energy Physics, Task I: Dark Energy (Co-Investigator, with G. Tarlé, W. Lorenzon, and T. McKay), U.S. Department of Energy, \$443,000 + \$40,000 supplement
2008-09	High Energy Physics, Task I: Dark Energy (Co-Investigator, with G. Tarlé and T. McKay), U.S. Department of Energy, \$349,000

2007-08 High Energy Physics, Task I: Dark Energy (Co-Investigator, with G. Tarlé and T. McKay), U.S. Department of Energy, \$366,000

2006-07 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei and M. Campbell), U.S. Department of Energy, \$536,000

2006-07 Whittaker Stage II Award: Renewing the Introductory Physics Labs: Aligning The Curriculum and Improving Student Understanding, University of Michigan (Co-Investigator, with T. McKay, J. Wells, A. Tomasch), University of Michigan, \$15,000

2006-07 High Energy Physics, Task I: Dark Energy (Co-Investigator, with G. Tarlé and T. McKay), U.S. Department of Energy, \$411,000

2006-07 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei and M. Campbell), U.S. Department of Energy, \$537,000

2005-06 High Energy Physics, Task I: Dark Energy (Co-Investigator, with G. Tarlé and T. McKay), U.S. Department of Energy, \$345,000

2005-06 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei and M. Campbell), U.S. Department of Energy, \$685,000

2004 Fall Research Leave: SuperNova/Acceleration Probe, Lawrence Berkeley National Laboratory, \$31,627

2004-05 High Energy Physics, Task I: SuperNova/Acceleration Probe (Co-Investigator, with G. Tarlé and T. McKay), U.S. Department of Energy, \$561,207

2004-05 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei and M. Campbell), U.S. Department of Energy, \$740,000

2003-04 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei, M. Campbell, and J. Chapman), U.S. Department of Energy, \$825,000

2002-03 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei, M. Campbell, and J. Chapman), U.S. Department of Energy, \$800,000

2001-02 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei, M. Campbell, and J. Chapman), U.S. Department of Energy, \$834,500

2000-01 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei, M. Campbell, and J. Chapman), U.S. Department of Energy, \$810,000

2000-01 Linear Collider Simulation and Physics Studies (Principal Investigator), Stanford Linear Accelerator Center, \$35,075

1999-2000 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei, M. Campbell, J. Chapman), U.S. Department of Energy, \$825,000

1999 Construction of CDF Central Outer Tracker Mezzanine Cards (Principal Investigator), Fermi National Accelerator Laboratory, \$143,554

1998-99 High Energy Physics, Task C: Hadron Collider Physics at CDF (Co-Investigator, with D. Amidei, M. Campbell, and J. Chapman), U.S. Department of Energy, \$731,000

1997-98 Construction of CDF Central Outer Tracker High Voltage Fs (Principal Investigator), Fermi National Accelerator Laboratory, \$188,594

1997-2002 CAREER Award: Studies in Hadron Collider Physics (Principal Investigator), National Science Foundation, \$360,000

1996-98 Outstanding Junior Investigator Award: Top Quark Physics with an Upgraded CDF Tracking System, U.S. Department of Energy, \$240,000

1998 Studies in Elementary Particle Physics (Co-Investigator, with B. Barnett), NSF, \$365,000

1997 Studies in Elementary Particle Physics (Co-Investigator, with B. Barnett), NSF, \$405,000

1997-98 vBNS Connectivity for Johns Hopkins University (Co-Investigator, with A. Szalay *et al.*), NSF, \$350,000

1997 Scalable High Performance Computing Applications (Co-Investigator, with A. Szalay *et al.*), Intel Corporation, \$1,700,000

1996 Studies in Elementary Particle Physics (Co-Investigator, with B. Barnett), NSF, \$255,000

Selected Journal Publications (from over 560 SPIRES entries; complete list available separately)

- “Trans-Neptunian Objects Detected in the First Four Years of the Dark Energy Survey,” P. Bernardinelli et al. accepted by *Astronomical Journal* (2020), arXiv:1909.01478
- “Detection of Diatomic Carbon in 2I/Borisov,” H.-W. Lin, C. S. Lee, D. W. Gerdes, F. Adams, J. C. Becker, L. Markwardt, K. Napier (2020), accepted by *Astrophysical Journal Letters*. arXiv:1912.06161
- “Dynamical Classification of Trans-Neptunian Objects Observed by the Dark Energy Survey,” T. Khain, D. Gerdes, H.-W. Lin, J. C. Becker, F. C. Adams et al. (2020), accepted by *Astronomical Journal*
- “Search for L5 Earth Trojans with DECam,” L. Markwardt, D. Gerdes, R. Malhotra, J. C. Becker, S. J. Hamilton, F. C. Adams (2019), accepted by *Monthly Notices of the Royal Astronomical Society*
- “Evidence for Color Dichotomy in the Primordial Neptunian Trojan Population,” H.-W. Lin, D. Gerdes, S. Hamilton, F. Adams *et al.* 2019, *Icarus* 321, 426; arXiv:1806.09696
- “Discovery and Dynamics of Three Closely Associated Extreme Trans-Neptunian Objects,” T. Khain, J. C. Becker, F. Adams, D. Gerdes, S. Hamilton *et al.*, (2018) *AJ* 156, 276
- “Deep Drilling Fields for Solar System Science,” D. Trilling, M. Bannister, C. Fuentes, D. Gerdes, M. Mommert, M. E. Schwamb, C. Trujillo, White Paper submitted in response to the Call for LSST Cadence Optimization White Papers (2018), arXiv:1812.09705
- “Discovery and Dynamical Analysis of an Extreme Trans-Neptunian Object with a High Orbital Inclination,” J. C. Becker, T. Khain, S. Hamilton, F. Adams, D. Gerdes *et al.*, 2018, *AJ* 156, 2, 81
- “Large Synoptic Survey Telescope Solar System Science Roadmap,” M. Schwamb *et al.*, arXiv:1802.01783 Feb. 2018
- “Evaluating the Stability of Outer Solar System Objects in the Presence of Planet Nine,” J. C. Becker, F. Adams, T. Khain, S. Hamilton, and D. Gerdes, *AJ* 154, 2, 61 (2017), arxiv:1706.06609
- “A gravitational-wave standard siren measurement of the Hubble constant,” LIGO Scientific Collaboration *et al.*, *Nature* **Nature** 551, 8588 (2017)
- “Multi-Messenger Observations of a Binary Neutron-Star Merger,” Abbott, B. P., Abbott, R., Abbott, T. D., et al. 2017, *ApJ Letters* 848, L12
- “The Electromagnetic Counterpart of the Binary Neutron Star Merger LIGO/Virgo GW170817. I. Discovery of the Optical Counterpart Using the Dark Energy Camera,” M. Soares-Santos *et al.*, *ApJL* has 848 L16 (2017).
- “Dark Energy Survey Year 1 Results: Cosmological Constraints from Galaxy Clustering and Weak Lensing,” T. M. Abbott *et a.* (DES Collaboration), arXiv:1708.01530 (Aug. 2017)
- “Dark Energy Survey Year 1 Results: A Precise H0 Measurement from DES Y1, BAO, and D/H Data,” T. M. Abbott *et a.* (DES Collaboration), arXiv:1711.00403 (Aug. 2017)
- “Discovery and Physical Characterization of a Large Scattered Disk Object at 92 AU,” D. Gerdes *et al.* (DES Collaboration), *ApJL* 839, 1, L15 (2017), arXiv:1702:00731
- “The Pan-STARRS I Discoveries of Five New Neptune Trojans,” H. W. Lin *et al.* arXiv:1609.04677 (2016), accepted by *Astronomical Journal*, 152, 147 (2016).
- “Joint analysis of galaxy-galaxy lensing and galaxy clustering: Methodology and forecasts for Dark Energy Survey,” Park, Y. *et al.* (DES Collaboration), *PRD* 94, 063533 (2016)
- “Cosmology Constraints from Shear Peak Statistics in Dark Energy Survey Science Verification Data”, T. Kacprzak *et al.* (DES Collaboration), *MNRAS*, 463, 3653 (2016).
- “A Dark Energy Camera Search for Missing Supergiants in the LMC After the Advanced LIGO Gravitational Wave Event GW150914,” J. Annis *et al.* (DES Collaboration), *ApJL*, 823, L34 (2016)
- “A DECam Search for an Optical Counterpart to the First Advanced LIGO Gravitational Wave Event GW150914,” C. Cowperthwaite *et al.* (DES Collaboration), *ApJL* 826, L29 (2016)
- “The Dark Energy Survey: More than Dark Energy – An Overview,” T. Abbott *et al.* (DES Collaboration), *MNRAS* 460, 1270 (2016)
- “Observation of Two New L4 Neptune Trojans in the Dark Energy Survey Supernova Fields,” D. Gerdes *et al.* (DES Collaboration), *AJ* 151, 39 (2016)
- “Galaxies in X-Ray Selected Clusters and Groups in Dark Energy Survey Data. I. Stellar Mass Growth of Bright Central Galaxies since $z \sim 1.2$,” Y. Zhang *et al.* (DES Collaboration), *ApJ* 816, 2, 98 (2016)
- “The Difference Imaging Pipeline for the Transient Search in the Dark Energy Survey,” R. Kessler *et al.* (DES Collaboration), *AJ* 150, 6, 172 (2015)
- “The Dark Energy Camera,” B. Flaugher *et al.* (DES Collaboration), *AJ* 150, 5, 150 (2015)
- “Eight Ultra-Faint Galaxy Candidates Discovered in Year Two of the Dark Energy Survey,”

- A. Drlica-Wagner *et al.* (DES Collaboration), *ApJ* 813, 2, 109 (2015)
- “Automated Transient Identification in the Dark Energy Survey,” D. Goldstein *et al.* (DES Collaboration), *AJ* 150, 3, 82 (2015)
- “Search for Gamma Ray Emission from DES Dwarf Spheroidal Galaxy Candidates with Fermi-LAT Data,” A. Drlica-Wagner *et al.* (DES Collaboration), *ApJL* 809, 1, L4 (2015)
- “Eight New Milky Way Companions Discovered in First-Year Dark Energy Survey Data,” K. Bechtol *et al.* (DES Collaboration) *ApJ* 807, 1, 50 (2015)
- “Cosmology from Cosmic Shear with DES Science Verification Data,” T. Abbott *et al.* (DES Collaboration), arXiv:1507.05552 (2015)
- “DES13S2cmm: The First Superluminous Supernova from the Dark Energy Survey,” A. Papadopoulos *et al.* (DES Collaboration), *MNRAS* 449, 2, 1215 (2015)
- “Modeling the Transfer Function for the Dark Energy Survey,” C. Chang *et al.* (DES Collaboration), *ApJ* 801, 2, 73 (2015)
- “Combining Dark Energy Survey Science Verification Data with Near Infrared Data from the ESO VISTA Hemisphere Survey,” M. Banerji *et al.* (DES Collaboration), *MNRAS* 446, 2523 (2015)
- “Photometric Redshifts in the Dark Energy Survey Science Verification Data,” C. Sanchez *et al.* (DES Collaboration), *MNRAS* 445, 1482 (2014)
- “Mass and galaxy distributions of four massive galaxy clusters from Dark Energy Survey Science Verification Data,” P. Melchior *et al.* (DES Collaboration), *MNRAS* 449, 3, 2219
- “Status of the Dark Energy Survey Camera (DECam) Project”, B. Flaugher *et al.*, Ground-based and Airborne Instrumentation for Astronomy IV 8446 (2012)
- “The BigBoss Experiment,” D. Schlegel *et al.*, arXiv:1106.1706 (June, 2011).
- “Reducing Zero-point Systematics in Dark Energy Supernova Experiments,” L. Faccioli *et al.*, *AstroPart. Phys.* **34**, 847 (2011).
- “A GMBCG Galaxy Cluster Catalog of 55,424 Rich Clusters from SDSS DR7,” J. Hao *et al.*, *Ap. J. Sup.* **191**, 254 (2010).
- “PHAT: PHoto-z Accuracy Testing,” H. Hildebrandt *et al.*, *Astronomy & Astrophysics* **523**, A31 (2010).
- “ArborZ: Photometric Redshifts Using Boosted Decision Trees,” arXiv:0908.4085, D. Gerdes *et al.*, *Ap. J.* **715**, 823 (2010).
- “Precision Measurements of the Cluster Red Sequence using an Error Corrected Gaussian Mixture Model,” J. Hao *et al.*, *Ap. J.* **702**, 745 (2009).
- “Measurement of W-Boson Polarization in Top-quark Decay in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV,” T. Aaltonen *et al.*, arXiv:1003.0224, submitted to *Phys. Rev. Lett.* (2010).
- “Measurement of the Top Pair Production Cross Section in the Dilepton Decay Channel in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV,” T. Aaltonen *et al.*, arXiv:1002.2919, submitted to *Phys. Rev. D* (2010).
- “Inclusive Search for Standard Model Higgs Boson Production in the WW Decay Channel using the CDF II Detector,” T. Aaltonen *et al.*, arXiv:1001.4468, submitted to *Phys. Rev. Lett.* (2010).
- “Combination of Tevatron searches for the standard model Higgs boson in the $W+W-$ decay mode,” T. Aaltonen *et al.*, *Phys. Rev. Lett.* **104**, 061802 (2010).
- “A Search for the Higgs Boson Produced in Association with $Z \rightarrow l+l-$ Using the Matrix Element Method at CDF II,” T. Aaltonen *et al.*, *Phys. Rev. D* **80**, 071101 (2009).
- “First Observation of Electroweak Single Top Production,” T. Aaltonen *et al.*, *Phys. Rev. Lett.* **103**, 092002 (2009).
- “Global Search for New Physics with 2.0 fb^{-1} at CDF,” T. Aaltonen *et al.*, *Phys. Rev.* **D79**, 011101 (2009).
- “Bringing the Classroom to the Web: Effects of Using New Technologies to Capture and Deliver Lectures,” E. L. Dey, H. E. Burn, and D. Gerdes, *Res. High. Educ.* **50**, 4 (2009).
- “Search for a Higgs Boson Decaying to Two W Bosons at CDF,” T. Aaltonen *et al.*, *Phys. Rev. Lett.* **102** 021802 (2009).
- “Search for the Higgs boson produced with $Z \rightarrow \ell^+\ell^-$ in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV,” T. Aaltonen *et al.*, *Phys. Rev. Lett.* **101** 251803 (2008).
- “Search for Standard Model Higgs Boson Production in Association with a W Boson at CDF,” T. Aaltonen *et al.*, *Phys. Rev.* **D78**, 032008 (2008).
- “Search for Standard Model Higgs Bosons Produced in Association with W Bosons,” T. Aaltonen *et al.*, *Phys. Rev. Lett.* **100**, 041801 (2008).
- “Limits on the Production of Narrow $t\bar{t}$ Resonances in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”

- T. Aaltonen *et al.*, Phys. Rev. **D77**, 051102 (2008).
- “Search for Higgs Bosons in Events with Missing Transverse Energy and b Quark Jets Produced in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV,” T. Aaltonen *et al.*, Phys. Rev. Lett. **100**, 211801 (2008).
- “Measurement of the Cross Section for W Boson Production in Association with Jets in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV,” T. Aaltonen *et al.*, Phys. Rev. **D77**, 011108 (2008).
Rapid Communications (2007).
- “First Observation of the Heavy Baryons Σ_b and Σ_b^* ,” T. Aaltonen *et al.*, Phys. Rev. Lett. **99** 202001 (2007).
- “Precise Measurement of the Top Quark Mass in the Lepton + Jets Topology at CDF II,” A. Abulencia *et al.*, Phys. Rev. Lett. **99**, 182002 (2007).
- “Cross Section Constrained Top Quark Mass Measurement from Dilepton Events at the Tevatron,” T. Aaltonen *et al.*, Phys. Rev. Lett **100**, 062005 (2007).
- “Measurement of the Top Quark Mass using Missing- E_T Plus Jets Events with Secondary Vertex b -tagging at CDF II,” T. Aaltonen *et al.*, Phys. Rev. **D75**, 111103 (2007).
- “Precision Measurement of the Top Quark Mass from Dilepton Events at CDF II,” A. Abulencia *et al.*, Phys. Rev. D **75**, 031105 (2007).
- “Top Quark Mass Measurement from Dilepton Events at CDF II with the Matrix-Element Method,” A. Abulencia *et al.*, Phys. Rev. D **74**, 032009 (2006).
- “Measurement of the Helicity of W Bosons in Top-Quark Decays,” A. Abulencia *et al.*, Phys. Rev. **D73**, 111103 (2006).
- “Measurement of the $t\bar{t}$ Production Cross Section in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV using Lepton + Jets Events with Jet Probability b -tagging, A. Abulencia *et al.*, Phys. Rev. D **74**, 072006 (2006), hep-ex/0607035.
- “Search for Large Extra Dimensions Using Dielectron and Diphoton Events in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV,” D. Gerdes, S. Murgia, J. Carlson, R. Blair, J. Huston, and D. Berebitsky, Phys. Rev. D **73**, 112008 (2006).
- “Top Quark Mass Measurement from Dilepton Events at CDF II,” A. Abulencia *et al.*, Phys. Rev. Lett. **96**, 152002 (2006).
- “Measurement of the $t\bar{t}$ Production Cross Section in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV Using Missing- E_T Plus Jets Events with Secondary Vertex b -Tagging, A. Abulencia *et al.*, Phys. Rev. Lett. **97**, 082004 (2006).
- “Precision Top Quark Mass Measurement in the Lepton + Jets Topology in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV,” A. Abulencia *et al.*, Phys. Rev. Lett. **96**, 022004 (2006).
- “Measurement of the $t\bar{t}$ Production Cross Section in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV Using Lepton + Jets Events with Secondary Vertex b -tagging,” D. Acosta *et al.*, Phys. Rev. D **71**, 052003 (2005).
- “Measurement of $\mathcal{B}(t \rightarrow Wb)/\mathcal{B}(t \rightarrow Wq)$ at the Collider Detector at Fermilab,” D. Acosta *et al.*, Phys. Rev. Lett. **95**, 102002 (2005).
- “First Measurements of Inclusive W and Z Cross Sections from Run II of the Tevatron Collider,” D. Acosta *et al.*, Phys. Rev. Lett. **94**, 091803 (2005).
- “Supernova Acceleration Probe: Studying Dark Energy with Type Ia Supernovae,” J. Albert *et al.* (SNAP Collaboration), astro-ph/0507459 (2005).
- “Seeing the Nature of the Accelerating Physics: It’s a SNAP,” J. Albert *et al.* (SNAP Collaboration), astro-ph/0507458 (2005).
- “Search for Anomalous Kinematics in $t\bar{t}$ Dilepton Events at CDF II,” D. Acosta *et al.*, Fermilab-Pub-04-396-E, submitted to Phys. Rev. Lett. (Dec. 2004).
- “Supernova/Acceleration Probe: A Satellite Experiment to Study the Nature of the Dark Energy,” G. Aldering *et al.*, (SNAP Collaboration), astro-ph/0405232, submitted to PASP (2004).
- “Top Quark Physics at the Tevatron,” D. Gerdes, Journal of the Korean Physical Society **45**, S268 (2004).
- “Observation of the Narrow State $X(3872) \rightarrow J/\psi\pi^+\pi^-$ in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV,” Phys. Rev. Lett. **93**, 072001 (2004).
- “Weak Lensing from Space. 1. Instrumentation and Survey Strategy,” J. Albert *et al.* (SNAP Collaboration), Astroparticle Physics **20**, 377 (2004).
- “The CDF Central Outer Tracker,” T. Affolder *et al.*, Nucl. Instrum. Methods Phys. Res. **A** 42586 (2004).
- “Search for Single Top Quark Production in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV,” D. Acosta *et al.*, Phys. Rev. D **65**, 091120 (2002)

- “Executive Summary of the Snowmass 2001 Working Group (P1), ‘Electroweak Symmetry-Breaking’,”
M. Carena, D. Gerdes, H. Haber, A. Turcot, and P. Zerwas, hep-ph/0203229, MCTP-02-16,
published in the proceedings of the Snowmass 2001 “Future of High Energy Physics” workshop (2002).
- “The Snowmass Points and Slopes: Benchmarks for SUSY Searches,” B.C. Allanach *et al.*,
hep-ph/0202233, Eur. J. Phys. **C25**, 113 (2002).
- “Limits on Extra Dimensions and New Particle Production in the Exclusive Photon and Missing Energy
Signature in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV,” D. Acosta *et al.*, Phys. Rev. Lett. **89**, 281801 (2002)
- “Linear Collider Physics Resource Book for Snowmass 2001,” Chapter on Top Quark Physics
(co-written with Ulrich Baur, SUNY-Buffalo), The American Linear Collider Working Group
(T. Abe *et al.*), BNL-52627, CLNS 01/1729, Fermilab-Pub-01/058-E, LBNL-47813,
SLAC-R-570, UCRL-ID-143810-DR, LC-REV-2001-074-US, June, 2001.
- “An Online Track Processor for the the Collider Detector at Fermilab,” E. Thomson *et al.*, IEEE
Trans. Nucl. Sci. **49**, 1063 (2002).
- “The Case for a 500 GeV Linear Collider,” J. Bagger *et al.*, SLAC-PUB-8495, BNL-67545,
Fermilab-Pub-00-152, LBNL-046299, UCRL-ID-139524, LBL-46299, July 2000,
hep-ex/0007022
- “Search for a Fourth Generation Quark More Massive than the Z^0 Boson in $p\bar{p}$ Collisions at
 $\sqrt{s} = 1.8$ TeV,” T. Affolder *et al.*, Phys. Rev. Lett. **84**, 835 (2000), hep-ex/9909027.
- “Measurement of the Helicity of W Bosons in Top Quark Decays at CDF,” T. Affolder *et al.*,
Phys. Rev. Lett. **84**, 216 (2000), hep-ex/9900042
- “Search for a W' Boson via the Decay $W' \rightarrow \mu\nu$ in $p\bar{p}$ Collisions,” F. Abe *et al.*,
Phys. Rev. Lett. **84**, 5716 (2000), hep-ex/9901004
- “Online Track Processor for the CDF Upgrade,” C. Ciobanu *et al.*, IEEE Trans. Nucl. Sci. **46**, 933 (1999).
- “Measurement of the Top Quark Mass with the Collider Detector at Fermilab,” F. Abe *et al.*,
Phys. Rev. Lett. **82**, 271 (1999).
- “Measurement of the CP-Violation Parameter $\sin 2\beta$ in $B_d^0-\bar{B}_d^0 \rightarrow J/\psi K_s$ Decays,” F. Abe *et al.*,
Phys. Rev. Lett. **81**, 5513 (1998); Phys. Rev. D **61**, 072005 (1999).
- “Observation of the B_c Meson in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV,” F. Abe *et al.*, Phys. Rev. Lett. **81**, 2432 (1998).
- “Observation of Hadronic W Decays in $t\bar{t}$ Events with the Collider Detector at Fermilab,” F. Abe *et al.*,
Phys. Rev. Lett. **80**, 5720 (1998).
- “Measurement of the Top Quark Mass,” F. Abe *et al.*, Phys. Rev. Lett. **80**, 2767 (1998).
- “Search for Flavor-Changing Neutral Current Decays of the Top Quark,” F. Abe *et al.*,
Phys. Rev. Lett. **80**, 2525 (1998).
- “Measurement of the $t\bar{t}$ Production Cross Section in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV” F. Abe *et al.*,
Phys. Rev. Lett. **80**, 2773 (1998).
- “First Observation of the All-Hadronic Decays of $t\bar{t}$ Pairs,” F. Abe *et al.*, Phys. Rev. Lett. **79**,
1992 (1997).
- “Observation of Top Quark Production with the Collider Detector at Fermilab,” F. Abe *et al.*,
Phys. Rev. Lett. **74**, 2626 (1995).
- “Shower Maximum Trigger for Electrons and Photons at CDF,” K. Byrum *et al.*, Nucl. Instrum.
Methods Phys. Res., Sect. **A364**, 144 (1995).
- “Search for Charged Bosons Heavier than the W in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV,” F. Abe *et al.*,
Phys. Rev. Lett. **74**, 2900 (1995).
- “Direct Measurement of the W Boson Width,” F. Abe *et al.*, Phys. Rev. Lett. **74**, 341 (1995).
- “Evidence for Top Quark Production in $p\bar{p}$ Collisions,” F. Abe *et al.*, Phys. Rev. D **50**, 2966 (1994).
- “Evidence for Top Quark Production in $p\bar{p}$ Collisions,” F. Abe *et al.*, Phys. Rev. Lett. **73**, 225 (1994).
- “A Study of Four-Jet Events and Evidence for Double Parton Interactions in $p\bar{p}$ Collisions at
 $\sqrt{s} = 1.8$ TeV,” F. Abe *et al.*, Phys. Rev. D **47**, 4857 (1993).
- “A Measurement of the Production and Muonic Decay Rate of W and Z Bosons at $\sqrt{s} = 1.8$ TeV,”
F. Abe *et al.*, Phys. Rev. Lett. **69**, 28 (1992).
- “A Search for New Gauge Bosons in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV,” F. Abe *et al.*,
Phys. Rev. Lett. **68**, 1463 (1992).
- “Search for $W' \rightarrow e\nu$ and $W' \rightarrow \mu\nu$ in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV,” F. Abe *et al.*,
Phys. Rev. Lett. **67**, 2609 (1992).

“Comment on ‘Neutron Star Masses as a Constraint on the Nuclear Compression Modulus’,” J. Cooperstein, E. A. Baron, D. Gerdes, and S. Kahana, *Phys. Rev. Lett.* **60**, 68 (1988).

Invited Talks and Conference Proceedings

- 2019 “New Worlds Beyond Neptune: Solar System Discoveries with DES”, From Deep Learning to the Dark Universe, London, UK, April 10, 2019
- 2018 “What Can the Dark Energy Survey Teach Us about the $z = 10^{-14}$ Universe?”, Planet Nine Workshop, Caltech, May 23, 2018
- 2014 “Dark Energy: Status and Outlook,” review talk presented at XXXIV Physics in Collision, Indiana University, Sept. 20, 2014
- 2011 “Cosmology with the Dark Energy Survey,” invited talk presented at the Shanghai Particle Physics and Cosmology Symposium, Shanghai, China, June 2011
- 2010 “Status of the Dark Energy Survey Camera (DECam) Project,” B. Flaugher *et al.*, SPIE2010, FERMILAB-CONF-10-214-A
- 2010 “ Testing the Dark Energy Camera on a Telescope Simulator,” H. T. Diehl *et al.*, SPIE2010, FERMILAB-CONF-10-179-E
- 2009 “The Dark Side of the Universe,” keynote address at Michigan SPS Undergraduate Research Conference, Wayne State University, Dec. 2009.
- 2006 “Introductory Laboratory Reforms at the University of Michigan,” talk presented at the American Association of Physics Teachers’ Summer meeting, Syracuse, NY, Aug. 2006.
- 2005 “Engaging Students in Large Lectures through Interactive Technology,” invited talk given at “Teaching the Disciplines and the Discipline of Teaching: A Symposium Celebrating 125 Years of the Art and Science of Teaching at Michigan,” School of Education, University of Michigan, June 2005.
- 2004 “Losing Face: The Importance of Seeing the Lecturer in Multimedia Presentations,” with H. Burn and E. Dey (Center for the Study of Higher and Postsecondary Education), paper presented by H. Burn at the Annual Conference for the Association of the Study of Higher Education (ASHE), November 14-16, 2004, Kansas City, MO.
- “Top Quark Physics at the Tevatron,” invited talk at the 2nd International Conference on Flavor Physics, Seoul, South Korea, Oct. 2003, published in the *Journal of the Korean Physical Society*, vol. 45, S268 (2004).
- “Teaching the Physics and Physiology of Rollercoasters,” invited talk presented at the AAPT meeting, Madison, WI, August 2003.
- “Measurements at the Linear Collider,” invited talk to be presented at the Delhi Symposium on Linear Colliders, Delhi, India, March 2003 (cancelled due to outbreak of Iraq war).
- “Detectors for the Linear Collider,” invited talk at the Fermilab Users Meeting, June 2002.
- “Top and QCD Physics at the Linear Collider,” invited talk at Loopfest 2002, Brookhaven National Laboratory, May 2002.
- “Searches for Large Extra Dimensions and Technicolor at the Tevatron,” plenary talk presented at the XXXVth Rencontres de Moriond: QCD and Hadronic Interactions at High Energy, Les Arcs, Savoie, France, March 18-25, 2000, published in the proceedings (Editions Frontieres).
- “Physics at Electron-Positron Linear Colliders,” plenary talk given at the $\mu\mu 99$ International Conference on Muon Colliders, San Francisco, Dec. 1999. hep-ph/0003046, published in the proceedings (World Scientific).
- “Physics Opportunities of the Next Linear Collider,” opening plenary talk given at the Next Linear Collider Lehman Review, Stanford Linear Accelerator Center, May 1999.
- “Top Quark Reconstruction with Full Simulation in the Large and Small Detectors,” talk at the Fourth International Workshop on Linear Colliders, Sitges, Spain, April 1999; published in the proceedings (Universitat Autònoma de Barcelona, 2000).
- “Top Quark Production and Decay at the Tevatron,” plenary talk at the XXIIth Rencontres de Moriond: Electroweak Interactions and Grand Unified Theories, Les Arcs, Savoie, France, March 15-22, 1997; hep-ex/9706001, published in “1997 Electroweak Interactions and Grand Unified Theories,” J. Trần Thanh Vân, ed., Editions Frontieres, 1997.

- “Top Quark Physics Results from CDF and DØ,” plenary talk at “New Directions for High Energy Physics” workshop, Snowmass, CO June 24-July 13, 1996; hep-ph/9609013, published in the proceedings.
- “Top Quark Physics: Future Measurements,” plenary talk at “New Directions for High Energy Physics” workshop, Snowmass, CO June 24-July 13, 1996; hep-ph/970424, published in the proceedings.
- “Observation of Top Quark Production with the CDF Detector at Fermilab,” plenary talk presented at Les Rencontres de Physique de la Vallée d’Aoste, La Thuile, Italy, March 1995. Published in “Results and Perspectives in Particle Physics,” M. Greco, ed., Frascati Physics Series, 1995.
- “Implementation of the Shower Max Electron Trigger at CDF,” K. Byrum *et al.*, published in “High Energy Physics: Proceedings of the 27th ICHEP, P.J. Bussey and I. G. Knowles, eds., IOP, 1995.
- “Shower Maximum Trigger for Electrons and Photons at CDF,” talk at the American Physical Society DPF ‘94 Meeting, Albuquerque, NM, Aug 1994. Published in “ThP05e Albuquerque Meeting: Proceedings,” S. Seidel, ed., World Scientific, 1995.
- “Measurement of Correlated b Quark Cross Sections at CDF,” talk at the American Physical Society DPF ‘94 Meeting, Albuquerque, NM, Aug 1994. Published in “The Albuquerque Meeting: Proceedings,” S. Seidel, ed., World Scientific, 1995.
- “Prospects for Top at CDF,” Invited talk at the XXVIIth Rencontres de Moriond, Les Arcs, Savoie, France, March 22-28, 1992. Published in “Perturbative QCD and Hadronic Interactions,” J. Trân Thanh Vân, ed., Editions Frontieres, 1992.

Minor Planet Electronic Circulars

These are electronic bulletins published by the Minor Planet Center to announce the discovery of “unusual minor planets.” The objects below are trans-Neptunian minor planets found by me and my students in Dark Energy Survey data and elsewhere.

- MPEC* 2020-C51: 2018 MG13 (New Horizons target) (Feb. 3, 2020)
MPEC 2020-B309: 2018 MF13 (New Horizons target) (Jan. 31, 2020)
MPEC 2020-B289: 2004 LW31 (New Horizons target) (Jan. 30, 2020)
MPEC 2019-J91: 37 New Distant Objects (May 11, 2019)
MPEC 2019-J52: Seven New Distant Objects (May 5, 2019)
MPEC 2019-H116: Eleven New Distant Objects (Apr. 30, 2019)
MPEC 2019-H115: Eleven New Distant Objects (Apr. 30, 2019)
MPEC 2019-H113: 2016 TY94 (Apr. 30, 2019)
MPEC 2019-H112: 2016 SV58 (Apr. 30, 2019)
MPEC 2019-H111: 2016 SG58 (Apr. 30, 2019)
MPEC 2019-H110: 2016 SP56 (Apr. 30, 2019)
MPEC 2019-H109: 2016 SS55 (Apr. 30, 2019)
MPEC 2019-H108: 2015 TW361 (Apr. 30, 2019)
MPEC 2019-H107: 2013 VQ25 (Apr. 30, 2019)
MPEC 2019-H106: 2015 TK363 = 2016 SM57 (Apr. 30, 2019)
MPEC 2019-H105: 2015 TJ363 = 2016 SL57 (Apr. 30, 2019)
MPEC 2019-H104: 2014 SP363 = 2014 SO364 (Apr. 30, 2019)
MPEC 2019-H101: 2003 QM91 (Apr. 29, 2019)
MPEC 2018-V144: 2016 QU89 (Nov. 11, 2018)
MPEC 2018-V143: 2016 QV89 (Nov. 11, 2018)
MPEC 2018-M77: 2014 SO350 (June 22, 2018)
MPEC 2018-J36: 2015 BP519 (May 10, 2018)
MPEC 2018-F514: 2014 WL517 (Mar. 29, 2018)
MPEC 2018-F515: 2014 WM517 (Mar. 29, 2018)
MPEC 2018-F516: 2016 PA101 (Mar. 29, 2018)
MPEC 2018-F517: 2016 SW50 (Mar. 29, 2018)

MPEC 2017-R51: 2016 QF86 (Sept. 13, 2017)
MPEC 2017-O65: 2014 QF442 (Jul. 29, 2017)
MPEC 2017-N24: 2014 UN225 (Jun. 30, 2017)
MPEC 2017-L64 : 2013 RR98 (Jun. 12, 2017)
MPEC 2017-L63 : 2013 RQ98 (Jun. 12, 2017)
MPEC 2017-G29 : 2015 UK84 (Apr. 4, 2017)
MPEC 2017-F210 : 2013 RP98 (Mar. 30, 2017)
MPEC 2017-F189 : 2014 SR250 (Mar. 28, 2017)
MPEC 2017-F98 : 2015 PL312 (Mar. 23, 2017)
MPEC 2017-F97 : 2014 SQ350 (Mar. 23, 2017)
MPEC 2017-F96 : 2014 QU442 (Mar. 23, 2017)
MPEC 2017-F95 : 2015 RS245 (Mar. 23, 2017)
MPEC 2017-F80 : 2015 PF312 (Mar. 22, 2017)
MPEC 2017-F79 : 2015 PD312 (Mar. 22, 2017)
MPEC 2016-T103 : 2014 UZ224 – dwarf planet candidate (Oct. 11, 2016)
MPEC 2016-S102 : 2014 XY40 (Sept. 30, 2016)
MPEC 2016-S17 : 2014 YL50 (Sept. 20, 2016)
MPEC 2016-Q29 : 2001 QF331 (Aug. 28, 2016)
MPEC 2016-P118: 2014 UY224 (Aug. 13, 2016)
MPEC 2016-P73: 2014 VW37 (Aug. 9, 2016)
MPEC 2016-K42: Five New Neptune Trojans (May 31, 2016)
MPEC 2016-C144: 2014 SZ348 (Feb. 12, 2016)
MPEC 2016-C117: 2014 QP441 (Feb. 10, 2016)
MPEC 2016-A102: 2014 TT85 (Jan. 10, 2016)
MPEC 2015-X117: 2015 SO20 = 2010 TF182 (Dec. 9, 2015)
MPEC 2015-X30: 2013 TJ159 (Dec. 4, 2015)
MPEC 2015-X29: 2013 RM98 (Dec. 4, 2015)
MPEC 2015-V57: 2014 SB349 (Nov. 5, 2015)
MPEC 2015-V39: 2014 QU441 (Nov. 4, 2015)
MPEC 2015-V17: 2014 QM441 (Nov. 3, 2015)
MPEC 2015-V16: 2014 QL441 (Nov. 3, 2015)
MPEC 2015-P05: 2013 TH159 (Aug. 5, 2015)
MPEC 2015-H101: 2012 YO9 (Apr. 23, 2015)
MPEC 2015-H62: 2014 UF224 (Apr. 21, 2015)
MPEC 2015-C53: 2013 RG98 (Feb. 11, 2015)
MPEC 2015-C16: 2013 RB98 (Feb. 6, 2015)
MPEC 2015-B175: 2013 SE99 (Jan. 31, 2015)
MPEC 2015-A21: 2013 RD98 (Jan. 9, 2015)
MPEC 2014-W119: 2007 TD418 (Nov. 26, 2014)
MPEC 2014-W115: 2012 VV113 (Nov. 26, 2014)
MPEC 2014-W70: 2012 VU113 (Nov. 22, 2014)
MPEC 2014-W50: 2012 WD36 (Nov. 20, 2014)
MPEC 2014-V20: 2014 QO411 (Nov. 10, 2014)
MPEC 2014-P57: 2013 TV158 (Aug. 13, 2014)
MPEC 2014-P56: 2013 QP95 (Aug. 13, 2014)
MPEC 2014-P55: 2013 QO95 (Aug. 13, 2014)
MPEC 2014-O66: 2012 VS113 (July 30, 2014)

Lectures, Colloquia, Posters, and Seminars

“Love Letters from the Kuiper Belt,” Astronomy on Tap, Ann Arbor, MI, Feb. 11, 2020
“The Great American Eclipse of 2017,” public lecture for Saturday Morning Physics,
University of Michigan, Feb. 4, 2018
“New Worlds Beyond Neptune with the Dark Energy Survey,”

Physics department colloquium at the University of Queensland, Brisbane, Australia, November 2017
“New Worlds Beyond Neptune with the Dark Energy Survey,”
Public lecture at the University of Queensland, Brisbane, Australia, November 2017
“The Coolest Place in the Solar System: New Worlds Beyond Neptune with the Dark Energy Survey,”
HEP/Astrophysics seminar at the University of Michigan, Oct. 23, 2017
Becker, J. (presenting), Adams, F., Khain, T., Hamilton, S., Gerdes, D. “Evaluating the Dynamical Stability of Outer Solar System Objects in the Presence of Planet Nine.” Oct. 2017, Division of Planetary Sciences Meeting (405.07), Provo, UT
Hamilton, S. (presenting), Gerdes, D. “Detection Bias for Objects on Highly Elliptical Orbits with the Dark Energy Survey,” Oct. 2017, Division of Planetary Sciences Meeting, Provo, UT
Khain, T. (presenting), Becker, J. C., Adams, F., and Gerdes, D., “Dynamics of a Possible Collisional Family of Extreme TNOs,” Oct. 2017, Division of Planetary Sciences Meeting, Provo, UT
“New Worlds Beyond Neptune and the Hunt for Planet Nine,” seminar at University of Sussex, UK, July 28, 2017
“New Worlds Beyond Neptune and the Hunt for Planet Nine,” seminar at University College London, UK, July 25, 2017
“New Worlds Beyond Neptune and the Hunt for Planet Nine,” seminar at Wayne State University, March 31, 2017
“The Coolest Place in the Solar System: Opportunistic Science with the Dark Energy Survey,” Astronomy seminar at the University of Michigan, Feb. 9, 2016
“The Coolest Place in the Solar System: Opportunistic Science with the Dark Energy Survey,” Astronomy colloquium at the University of Victoria, Oct. 21, 2015
“The Coolest Place in the Solar System: Opportunistic Science with the Dark Energy Survey,” colloquium at NRC Herzberg Astronomy and Astrophysics, Victoria, British Columbia, Oct. 20, 2015
“The Coolest Place in the Solar System: Opportunistic Science with the Dark Energy Survey,” Astronomy colloquium at the University of British Columbia, Oct. 19, 2015
“New trans-Neptunian Objects in the Dark Energy Survey Supernova Fields,” talk presented at the Division of Dynamical Astronomy meeting, Pasadena, CA, May 5, 2015
“New trans-Neptunian Objects in the Dark Energy Survey Supernova Fields,” talk presented at the APS April Meeting, Baltimore, MD, April 12, 2015
“Centaurs, Trojans, and Extreme TNOs,” talk at DES collaboration-wide teleconference, Feb. 16, 2015
“Discovering trans-Neptunian Objects with the Dark Energy Survey,” R. Jennings, Z. Zhang, and D. Gerdes, poster presentation at the American Astronomical Society Meeting, Seattle, WA, Jan. 8, 2015
“Observation of new trans-Neptunian Objects in the DES Supernova Fields: mid-Y2 update,” talk at the DES collaboration-wide teleconference, Nov. 17, 2014.
“Characterizing the trans-Neptunian Solar System with the Dark Energy Survey,” seminar at Laboratório Interinstitucional de e-Astronomia, Rio de Janeiro, Brazil, November 13, 2014
“Exploring Nature’s Dark Secrets: Cosmology (and more!) with the Dark Energy Survey,” colloquium at Oakland University, Oct. 23, 2014
“Observation of New Kuiper Belt Objects in the DES Y1 Supernovae Fields,” talk at the DES collaboration-wide teleconference, July 28, 2014
“First Results from the Dark Energy Survey,” colloquium at the University of Toronto, May, 2013
“Opto-Mechanical Alignment of DECam”, talk presented at Director’s Review of DECam Operational Readiness, Fermilab, March 2013
“Shedding Light on the Dark Universe,” colloquium at the University of Nebraska, Oct. 2012
“Photometric Redshifts with Boosted Decision Trees,” seminar at Laboratório Interinstitucional de e-Astronomia, Rio de Janeiro, Brazil, October 2012
“Cosmology with the Dark Energy Survey,” seminar at the University of Science and Technology of China (USTC), Hefei, China, June 2011
A. Cisler and D. Gerdes, “Optimization of Optical Cross-Correlation Filters for Type Ia Supernova Classification and Redshift Estimation,” poster presentation at the American Astronomical Society

- Meeting, Seattle, WA, Jan. 2011
- A. Sypniewski and D. Gerdes, “Estimating Photometric Redshifts in Non-Representative Galaxy Samples using Boosted Decision Trees,” poster presentation at the American Astronomical Society Meeting, Seattle, WA, Jan. 2011
- D. Gerdes, “Photometric Redshifts Using Boosted Decision Trees,” poster presentation at the American Astronomical Society meeting, Long Beach, CA, Jan. 2009.
- M. Weis and D. Gerdes, “Photometric Redshifts for MaxBCG Galaxy Clusters Using Boosted Decision Trees,” poster presentation at the American Astronomical Society meeting, Long Beach, CA, Jan. 2009.
- “Taking the Plunge: The Physics of Roller Coasters,” Saturday Morning Physics, University of Michigan, April 12, 2008.
- “Exploring the Accelerating Universe with The Dark Energy Survey,” seminar at Duke University, Feb. 2008.
- “The Dark Energy Survey,” seminar at University of Illinois, Oct. 2006.
- “Exploring the Dark Side of the Universe,” colloquium at Brandeis University, Mar. 2006
- “Exploring the Dark Side of the Universe,” colloquium at Northern Illinois University, Apr. 2005
- “Exploring the Dark Side of the Universe,” seminar at Wayne State University, Feb. 2005
- “Exploring the Dark Side of the Universe,” colloquium at Santa Clara University, Nov. 2004
- “Using Grisms to Study Baryon Oscillations with SNAP,” talk at the SNAP collaboration meeting, Berkeley, CA, Nov. 2004
- “Simulating Grisms for Space-Based Dark Energy Missions,” talk at SNAP Science Meeting, Sept. 2004
- “Near Infrared Detector Phase Space and Filtersets,” talk at the SNAP collaboration meeting, Berkeley, CA, Nov. 2003
- “Engaging Students in Large Lectures Through Peer Instruction,” CRLT Seminar for Preparing Future Faculty, May 2003; CRLT Enriching Scholarship Seminar, May 2004.
- “The Physics of Nothing,” Saturday Morning Physics, University of Michigan, March 15, 2003.
- “How Many Dimensions Does the Universe Have?”, Saturday Seminar for Outstanding High School Juniors, University of Michigan, May 2002, May 2003.
- “Detector Design at Linear Colliders,” invited talk presented to the Fermilab Graduate Student Association, March 2002.
- “Electroweak Symmetry Breaking: Outlook from Snowmass,” seminar presented at the University of Maryland, October 2001; also presented as a colloquium at Fermi National Accelerator Laboratory, August, 2001.
- “Physics at 10^{-18} Meters,” Physics Department colloquium at the University of Michigan, Oct. 2001.
- “Journey to the Center of the Proton: Physics at 10^{-18} Meters,” Saturday Seminar for Outstanding High School Juniors, University of Michigan, May 2001.
- Physics Colloquium, Carleton College, April 2001.
- “Just-in-Time Teaching with the WWW for Upper-Division Electricity and Magnetism,” talk at the American Association of Physics Teachers summer meeting, San Antonio, TX, Aug. 1999
- “The Physics and Technology of the CDF Upgrade,” seminar presented at Wayne State University, March 1999.
- “Top Quark Physics: From the Tevatron to the Linear Collider,” colloquium presented at the Stanford Linear Accelerator Center, Dec. 1998.
- “Comments on ‘Consilliness: Three Problems in Quantum Cosmology’,” seminar presented in the Philosophy Department at Carleton College, May 1998.
- “Physics with the CDF Upgrade,” seminar at the University of Michigan, Feb. 1998.
- “How to Stay in HEP, or How to Get What You Came for When You Came to Fermilab,” lecture to the Fermilab Graduate Student Association, Sept. 1997.
- “Hunting for the Top Quark at Fermilab,” colloquium at Swarthmore College, Nov. 1996.
- “Observation of the Top Quark,” colloquia at the University of Michigan, the University of Maryland, Johns Hopkins University, the University of Toronto, and Argonne National Laboratory, March-April 1995.
- “Evidence for the Top Quark Production at CDF,” seminar at the University of Maryland, May 1994.
- “Hunting for the Top Quark at Fermilab,” colloquium at Carleton College, April 1993.

Selected Internal Notes and Reports

- “BCAM Installation Guide,” A. Sypniewski, D. Gerdes, T. Diehl, DES-DOCDB-6232-v2 (2012)
- “BCAM Documentation,” A. Sypniewski, D. Gerdes, T. Diehl, DES-DOCDB 6004-v2 (2011)
- “Top Dilepton Cross Section in 1.2 fb^{-1} Using the DIL Selection,” M. Tecchio *et al.*, CDF Note 8741 (2006).
- “Measurement of the Top Quark Mass Using a Matrix Element Method in a b -Tagged Dilepton Sample,” D. Whiteson, B. Jayatilaka, M. Tecchio, D. Gerdes, H. H. Williams, CDF Note 8401 (2006).
- “Measurement of the Top Quark Mass in the Dilepton Channel Using a Matrix Element Method with 1 fb^{-1} ,” B. Jayatilaka, D. Whiteson, M. Tecchio, H.H. Williams, D. Gerdes, CDF Note 8369 (2006).
- “Measurement of the Top Quark Mass in b -tagged Dilepton Events in $\int L dt = 950 \text{ pb}^{-1}$,” D. Whiteson, B. Jayatilaka, M. Tecchio, D. Gerdes, H. H. Williams, CDF Note 8341 (2006).
- “Updated Measurement of the $Wb\bar{b}$ Cross Section,” M. Soderberg, C. Neu, D. Gerdes, CDF Note 8334 (2006).
- “Measurement of the Top Quark Mass in the Dilepton Channel in 1 fb^{-1} with the Matrix-Element Method,” B. Jayatilaka, D. Whiteson, M. Tecchio, D. Gerdes, H. H. Williams, CDF Note 8332 (2006).
- “Measurement of the $Wb\bar{b}$ Cross Section,” M. Soderberg, D. Gerdes, C. Neu, CDF Note 8181(2006).
- “ $W^\pm b\bar{b}$ Acceptance and Pretag Event Selection,” M. Soderberg, D. Gerdes, C. Neu, CDF Note 8180 (2006).
- “Top Quark Mass Measurement from Dilepton Events at CDF II with the Matrix-Element Method,” A. Kovalev, B. Jayatilaka, D. Whiteson, M. Tecchio, D. Gerdes, H.H. Williams, CDF Note 8077 (2006).
- “Measurement of the Top Quark Mass in the Dilepton Channel in $\int L dt = 750 \text{ pb}^{-1}$,” Jayatilaka, A. Kovalev, D. Whiteson, M. Tecchio, D. Gerdes, H.H. Williams, CDF Note 8058 (2006).
- “Top Quark Mass Measurement in Dilepton Events with 733 pb^{-1} ,” B. Jayatilaka, D. Whiteson, M. Tecchio, D. Gerdes, H.H. Williams, CDF Note 8039 (2006).
- “Combined Top Quark Mass Measurement in the Dilepton Channel at CDF,” A. Kovalev *et al.*, CDF Note 7937 (2005).
- “Measurement of the Helicity of W Bosons in Top Quark Decays,” David Gerdes, Nathan Goldschmidt, Tony Liss, Trevor Vickey, CDF Note 7804 (2005).
- “Combined Top Quark Mass Measurement in the Dilepton Channel,” A. Kovalev *et al.*, CDF Note 7791 (2005).
- “ W helicity analysis, lepton p_T method: updated result in 200 pb^{-1} ,” Nathan Goldschmidt, Stephen Miller, Ken Bloom, David Gerdes, Dante Amidei, CDF Note 7735 (2005).
- “Measurement of the Top Quark Mass in the Dilepton Channel using the Differential Cross-Section,” B. Jayatilaka, D. Gerdes, M Tecchio, A. Kovalev, D. Whiteson, H.H. Williams, CDF Note 7583 (2005).
- “Measurement of $\sigma_{Wb\bar{b}}/\sigma_{Wjj}$ in $W+1,2$ Jet Events,” M. Soderberg, S. Miller, and D. Gerdes, CDF Note 7565 (2005).
- “GRISIM: A Pixel-Level Grism Simulation for JDEM,” A. Bonissent, A. Tilquin, and D. Gerdes, SNAP Internal Note, 2004.
- “Measurement of the Fraction of Longitudinally Polarized W Bosons Produced in Top Quark Decays,” N. Goldschmidt, S. Miller, K. Bloom, D. Gerdes, D. Amidei, CDF Note 6950 (2004).
- “Feasibility Study for a Grism-based Instrument for SNAP,” N. Kuznetsova, D. Gerdes, A. Kim, SNAP Internal Note, 2004.
- “Measurement of the Helicity of W Bosons Produced in Top Quark Decays,” N. Goldschmidt, K. Bloom, D. Gerdes, and D. Amidei, CDF Note 6617 (2003).
- “ W Polarization Sensitivity Studies,” D. Amidei, D. Gerdes, N. Goldschmidt, N. Kuznetsova, T. Liss, and T. Vickey, CDF Note 6372 (2003).
- “Measurement of the $p\bar{p} \rightarrow t\bar{t}$ Cross Section in the Lepton + Jets SECVTX Tagged Sample,” D. Amidei *et al.*, CDF Note 6329 (2003).
- “The CDF Central Outer Tracker,” T. Affolder *et al.*, CDF Note 6267 (2003).
- “Combined Limit on Large Extra Dimensions Using central and Plug Diphotons,” D. Gerdes and S. Murgia, CDF Note 5694 (2001).
- “Search for Large Extra Spacetime Dimensions via the Drell-Yan Process,” D. Gerdes and J. Carlson, CDF Note 5391 (2001).
- “Search for Large Extra Dimensions Using High Mass Diphotons,” D. Gerdes, and D. Berebitsky, CDF Note 5373 (2001).
- “Limits on Large Extra Spacetime Dimensions from High-Mass Drell-Yan Events,” D. Gerdes, CDF Note 5103 (1999).

“Combined Limit on a Fourth Generation Quark in the $b' \rightarrow bZ$ Channel,” J. Guimarães da Costa, K. Bloom, D. Gerdes, CDF Note 4907 (1999).

“Update on the Search for a Fourth Generation Quark in the $Z \rightarrow ee$ Channel,” J. Guimarães da Costa, K. Bloom, D. Gerdes, CDF Note 4889 (1999).

“Search for a Fourth Generation Quark in the $Z \rightarrow \mu\mu$ Channel,” J. Guimarães da Costa, K. Bloom, D. Gerdes, CDF Note 4885 (1999).

“Search for a Fourth Generation Quark $b' \rightarrow bZ$,” J. Guimarães da Costa, K. Bloom, D. Gerdes, CDF Note 4907 (1999).

“Offline Environment for Simulations of the Run II Tracking System,” D. Gerdes *et al.*, CDF Note 3401 (1995).

“Proposal for a Straw Tube Replacement of the CDF Central Tracking Chamber,” D. Amidei *et al.*, CDF Note 3350 (1995).

“Improved Unweighting of VECBOS Monte Carlo Events,” D. Gerdes, CDF Note 3180 (1995).

“Measurement of B-Tagging Efficiency Using Away Jets,” C. Miao *et al.*, CDF Note 2994 (1995).

“On the Significance of the B-Tagged Mass Distribution,” D. Gerdes, CDF Note 2907 (1995).

“Top Search in Lepton + Jets with SECVTX,” W. Yao *et al.*, CDF Note 2989 (1995).

“Study of Conversion Removal for the Lepton + Jets Sample,” D. Gerdes, CDF Note 2907 (1994).

“Prospects for Observing Single Top Quark Production at the Tevatron,” D. Gerdes, CDF Note 2865 (1994).

“A Seed Vertexing Algorithm for Top,” W. Yao *et al.*, CDF Note 2716 (1994).

“ $b\bar{b}$ Correlated Cross Sections,” P. Derwent *et al.*, CDF Note 2581 (1994).

“Top Search with the SVX Jet Probability b -Tag,” D. Amidei *et al.*, CDF Note 2255 (1993).

“Study of the Jet Probability b -Tag Algorithm,” D. Amidei *et al.*, CDF Note 2091 (1993).

“ B Identification Using Jet Probability,” D. Gerdes, CDF Note 2023 (1993).

“Search for Top in Lepton + Jets with b -Tag,” S. B. Kim *et al.*, CDF Note 2005 (1993).

“Measurement of the SVX b -Tag Efficiency,” D. Amidei, P. Derwent, D. Gerdes, CDF Note 1962 (1993).

“Level-2 Electron Rates with a Central Strip Trigger,” D. Gerdes, CDF Note 1488 (1991).

“ W' Limit in the Combined Electron and Muon Channels,” D. Gerdes, CDF Note 1358 (1991).

Dissertation Committees

<u>Name</u>	<u>Department</u>	<u>Candidacy</u>	<u>Degree</u>	<u>Committee Chair</u>
Larissa Markwardt	Astronomy	F18		Y
Juliette Becker	Astronomy	W16	W19	
John Ware	Physics		F16	
Orion Sauter	Physics	F15	F18	
Jesse Golden-Marx	Astronomy	F15		
Stephanie Hamilton	Physics	W17	W19	Y
Anthony Kremin	Physics	S15	W19	Y
Santiago Carride	Physics		F15	
Eduardo Ruiz	Physics		W15	
Trisha Farooque	Physics (Toronto)		W13	external examiner
Sandor van Wassenhove	Astronomy		W13	
Adam Sypniewski	Physics	F11	W14	Y
Yuan-Yuan Zhang	Physics	W12	F15	
Andrew Eppig	Physics		W11	
Ross O'Connell	Physics		W10	
Steve Gliske	Physics	W08	W11	
Catagay Kutluhan	Mathematics		W09	
Clark Cully	Physics		F08	
Bodhitha Jayatilaka	Physics	W06	F06	Y
Mitchell Soderberg	Physics	W04	F06	Y
Matthew Brown	Physics	F04	F06	
David Moehring	Physics	F03	S07	
Joshua Davis	Physics	S03	S06	
Nathan Goldschmidt	Physics	W02	S05	Y
Erin Sheldon	Physics	W00	W02	
David Wolinski	Physics	W00	W01	
Hisham Sati	Physics	F99	W03	
John Carlson	Physics	F99	W02	Y (Co-chair, with Prof. M. Campbell)
Eugene Kushnirsky	Mathematics		F99	
João Guimarães da Costa	Physics	W96	W00	Y
Konstantin Matchev	Physics (JHU)		F97	
Kent Staley	Philosophy (JHU)		W97	
Alexander Kyatkin	Physics (JHU)		F96	
Jeff Tseng	Physics (JHU)		W96	

Postdoctoral Associates

Hsing-Wen Edward Lin (2016-)
Jeeseon Song (2010-13)
Alexei Varganov (2004-08)
Kenneth Bloom (1997-2004)
Claudio Ferretti (2000-03)
Zhong Feng (1996-97)

Teaching Assignments

W19 260 Honors Physics II
 F18 260 Honors Physics II
 W18 240 General Physics II (with D. Winn)
 F17 240 General Physics II (with D. Winn and D. Huterer)
 F16 240 General Physics II (with D. Winn)
 W16 240 General Physics II (with D. Winn, G. Tarlé)
 F15 240 General Physics II (with D. Winn)
 S15 240 General Physics II (with D. Winn)
 W15 240 General Physics II (with D. Winn)
 F14 240 General Physics II (with D. Winn)
 S14 240 General Physics II (with D. Winn)
 F13 240 General Physics II (with D. Winn)
 S13 140 General Physics I (with W. Lau)
 W12 235 Physics for the Life Sciences II
 F11 438 Electromagnetic Radiation
 F10 126 General Physics: Electricity and Light (with W. Lau)
 F09 126 General Physics: Electricity and Light: LEC
 S09 126 General Physics: Electricity and Light (with G. Tarlé)
 F08 390 Introduction to Modern Physics: LEC
 S08 126 General Physics: Electricity and Light (with G. Tarlé)
 W08 261 Honors Electricity and Magnetism Laboratory
 S07 126 General Physics: Electricity and Light (with G. Tarlé)
 W07 261 Honors Electricity and Magnetism Laboratory
 F06 993 GSI Training
 F06 128 Elementary Lab
 S06 126 General Physics: Electricity and Light (with G. Tarlé)
 W06 128 Elementary Lab
 F05 241 Elementary Lab II
 F05 993 GSI Training
 S05 126 General Physics: Electricity and Light (with G. Tarlé)
 W04 126 General Physics: Electricity and Light: LEC(2)
 F03 405 Intermediate Electricity and Magnetism: LEC
 W03 405 Intermediate Electricity and Magnetism: LEC
 F02 126 General Physics: Electricity and Light: LEC
 W02 125 General Physics: Mechanics and Sound: LEC(2)
 F01 390 Introduction to Modern Physics: LEC
 W01 390 Introduction to Modern Physics: LEC
 F00 125 General Physics: Mechanics and Sound: LEC(2)
 W00 405 Intermediate Electricity and Magnetism: LEC
 F99 125 General Physics: Mechanics and Sound: DIS(3)
 W99 405 Intermediate Electricity and Magnetism: LEC
 W98 171.302 Introduction to Electromagnetic Theory II (JHU)
 F97 171.301 Introduction to Electromagnetic Theory I (JHU)
 W97 171.302 Introduction to Electromagnetic Theory II (JHU)
 F96 171.301 Introduction to Electromagnetic Theory I (JHU)
 W96 171.114 Introduction to Frontier Physics (JHU)
 F94 125 General Physics: Mechanics, Sound, and Heat: DIS(3)

Independent Study Students

REU S17 Kevin Napier (Siena College)

415	F16-present	Kyle Franson
415	S16-W18	Lynus Zullo
REU	S16	Colin Scheibner (St. Olaf College)
UROP	F15-W16	Zachary Felker
415	F15-present	Tali Khain
HS	S15	Tali Khain
REU	S15	Zachary Elledge (Wayne State)
415	W15	Noah Swimmer
415	F14-W15	Jacob Goodman
UROP	F14-W15	Chris Little
REU	S14	Zhilu Zhang (Carleton College)
REU	S14	Ross Jennings (Carleton College)
415	S12-W13	Mykola Murskyj
REU	S12	Cody Carr (Kalamazoo College)
415	F11-W12	Kevin Smith
415	W11-W12	Aaron White
415	W11	Christine Harris
415	F10-W11	Andy Cisler
—	F09-W10	Michael Bell
—	W10	Steve Bokshan
415	F08-W09	Michael Bell (with David Baker, Dept. of Philosophy)
415	F08	Jonathan Baur
—	F07-W10	Matt Weis
REU	S07	Jeff Kritzman
415	W07	Athena Eyster
415	F06	Michelle Love
REU	S06	David Adams
REU	S06	Michelle Love
UROP	S05	Sonya Nikolaidis
496	F02,W03	Eric Thrane (senior thesis)
	S02	David Baker, Eric Thrane
REU	S01	David Baker, Eric Thrane
496	F00,W01	Daniel Berebitsky (senior thesis): 2001 Williams Prize
415	F00,W01	David Baker, Eric Thrane
REU	S00	Daniel Berebitsky
415	W00	David Baker, Eric Thrane
515	F99	Joseph Kuah
REU	S99	Deborah Weber (University of Colorado)

Other Teaching Information

- 2010-11 Whitaker Stage I Award: Institutionalizing Assessment as Part of Introductory Course Reform in Physics(with T. McKay, G. Evrard), University of Michigan, \$15,000.
- 2009-10 Featured in campus-wide posters encouraging students to participate in new online teaching evaluations
- 2006-07 Whittaker II Award: Renewing Introductory Physics Labs: Aligning the Curriculum and Improving Student Understanding, \$15,000.
- 2004 “About Face: The Importance of Seeing the Lecturer in Multimedia Presentations,” with H. Burn and E. Dey (Center for the Study of Higher and Postsecondary Education), paper presented at the Annual Conference for the Association of the Study of Higher Education (ASHE), November 14-16, 2004, Kansas City, MO.
- 2004 Seminar on “Engaging Students in Large Lectures through Peer Instruction,” presented at

- 2003 CRLT Enriching Scholarship opening plenary session
Seminar on “Instructional Technology in the Classroom” for CRLT Workshop on Preparing Future Faculty
- 2002-04 School Coordinator and Head Coach, Washtenaw Elementary Science Olympiad, Allen Elementary School, Ann Arbor
- 2003,04 Taught course on “Rollercoaster Physics” for Michigan Math and Science Scholars summer program for high school students
- 2002 Received \$896 grant from LS&A Information Technology Committee for “Development of Web-Based Reading Quizzes for Introductory Physics”
- 2001 Undergraduate Daniel Berebitsky received the Williams Prize for his senior thesis written under my supervision and entitled “Search for Large Extra Dimensions Using High Mass Diphotons with the Collider Detector at Fermilab”
- 1999 Developed web-based content for upper-division Electricity and Magnetism course and integrated it with the lecture format. Presented this work in a talk at the AAPT Summer Meeting, San Antonio, TX, August 1999

Department, College, and University Service and Committees

- 2018- UM Goldwater Scholarship Nomination Committee
- 2017-18 Chair, Launch committee for Assistant Professor of Economics Michael Mueller-Smith
- 2016-17 Chair, Launch committee for Assistant Professor of Sociology Fabian Pfeffer
- 2016- Chair, Physics Dept. Undergraduate Concerns Committee
- 2014-16 Chair, Physics Dept. Editorial Board
- 2014 Major Review Committee for Lecturer Dave Winn
- 2014-15 Chair, Tenure Review Panel for Assistant Professor Jeff McMahan
- 2014-15 Chair, LSA Nominating Committee
- 2014 Co-chair, organizing committee for F14 LSA Theme Semester: Sport and the University
- 2013-15 Rackham Distinguished Dissertation Committee
- 2013-14 LSA Dean Search Advisory Committee
- 2012- Faculty Mentor for Assistant Prof. Tom Schwarz
- 2012 Tenure Review Panel for Assistant Professor Kathryn Zurek
- 2012 Third Year Review Committee for Assistant Prof. Jeff McMahan
- 2011 Provost’s Advisory Committee on Changes to Tenure Probationary Periods
- 2011 Panelist, “Teaching Large Lecture Courses,” LSA Teaching Academy
- 2011 Provost’s Long-Term Strategic Vision Committee
- 2010 Vocal Training with the Royal Shakespeare Company voice trainer Lynn Darnley
- 2010 Panelist, “The Tenure Process,” Workshop on Preparing Future Faculty
- 2010 LSA ad-hoc faculty grievance review panel
- 2010, 2012 Invited speaker to a group of 25 visiting Chinese university presidents. Topic: Academic Freedom
- 2010-13 Faculty Mentor for Assistant Prof. Kathryn Zurek
- 2009-15 Faculty Mentor for Assistant Prof. Jeff McMahan
- 2009-12 Executive Committee, College of Literature, Science, and the Arts
- 2009-12 Budget Advisory Committee, College of Literature, Science, and the Arts
- 2009-10 Panelist, “Engaging U of M Students,” LSA Teaching Academy
- 2008-10 Provost’s Online Teaching Evaluations Steering Committee
- 2008-09 Faculty Search Committee, Department of Physics (hired Henriette Elvang, Jeff McMahan)
- 2008-09 Associate Chair for Research and Facilities, Department of Physics
- 2008-09 Physics Concentration Advisor
- 2007- Winston Churchill Scholarships, UM Campus Representative
- 2007-10 LS&A Academic Judiciary Committee
- 2007- Undergraduate Concerns Committee, Dept. of Physics
- 2007- Curriculum Committee, Dept. of Physics

2007-08	Thurnau Professorship Selection Advisory Committee
2006-07	Executive Committee, Department of Physics
2006-07	LS&A Nominating Committee
2005-07	Weidenbeck Prize Committee
2005-06	Outreach Committee
2005-06	LS&A Nominating Committee
2005-	Faculty Supervisor, Introductory Electromagnetism/Optics Laboratories
2002-05	Supervisor, Physics Department Office of Computing Services
2000- 2006	Chair, Physics Department Computing Committee
2002-	Campus Day faculty panel participant
2001- 2003	Saturday Seminars for Outstanding High School Juniors
2003-04	Coordinated HEP group effort to recruit Dr. Bonnie Fleming as ADVANCE hire
2003-04	Promotion committee for Prof. James Wells
2001-04	Saturday Morning Physics (Fall series organizer)
2001-04	Instructional Technology Oversight Committee
2002-03	LS&A Nominating Committee
2001-02	High Energy Theory faculty search committee (hired J. Wells)
2000-03	Graduate Admissions Committee
1999-2000	Society of Physics Students faculty advisor
1998-2000	High Energy Physics / Astrophysics weekly seminar organizer
1997-98	Computing Committee (Johns Hopkins)
1997-98	Faculty search committee, experimental high energy physics (Johns Hopkins)
1996-98	Electronics Shop faculty supervisor (Johns Hopkins)

Outreach and Community Service Activities

2018	Public lecture at Grand Rapids Amateur Astronomical Society, 3/15/18
2017	Public lecture at Kalamazoo Astronomical Society, 5/5/17
2016-17	Science Communication Fellow, University of Michigan Natural History Museum
2016	Public lecture at Warren Astronomical Society, Bloomfield Hills, MI, 2/1/16
2015	“New Worlds, New Horizons,” public lecture at NEXT Community Center, Birmingham, MI, 7/9/15
2014-15	Blog entries on darkenergydetectives.org
2011	Appearance on the “365 Days of Astronomy” podcast to discuss the Dark Energy Survey
2011,13	Informal talks on dark energy and the accelerating universe, Ann Arbor Science and Skeptics
2011	Faculty advisor, University of Michigan MRun running club
2010-12	FIRST Robotics team mentor, Skyline High School Team 3322
2010	Ann Arbor YMCA Strong Kids Campaign volunteer
2002-4	Science Olympiad head coach, Allen Elementary School, Ann Arbor

Media Coverage

2018	“Planet Nine, Show Thyself”, The Atlantic, 5/22/2018
2018	“Planet Nine Evidence Grows after Scientists Find Distant Object with Extraordinary Orbit”, Newsweek, 5/16/18
2018	“A New World’s Extraordinary Orbit Points to Planet Nine” Quanta Magazine, 5/15/18
2018	“Looking for Planet Nine, Scientists Gaze into the Abyss”, Scientific American, 3/22/18
2018	“Small Michigan Meteor Packed a Seismic Punch, Scientists Say”, space.com, 1/18/2018
2017	“In Search of the Ninth Planet”, phys.org, 10/17/2017
2017	“ALMA investigates “DeeDee,” a distant, dim member of the solar system”, NRAO news release, 4/12/2017
2016	“A Friend for Pluto: Scientists Find New Dwarf Planet in our Solar System”, feature of National Public Radio’s Morning Edition, 10/11/2016

- 2016 “Pluto gets a buddy: A new dwarf planet is discovered in our solar system”,
Washington Post, 10/11/2016
- 2016 “New Dwarf Planet Found in Our Solar System”, Scientific American, 10/12/2017
- 2016 “New Object Vies for Kuiper Belt Record”, Sky and Telescope, 10/11/2016
- 2016 “We are closing in on possible whereabouts of Planet Nine”, New Scientist, 4/20/2016
- 2016 “Mysterious Gravitational Tug on Saturn May Help Find Planet Nine”, Scientific American, 2/5/2016
- 2015 “Dark Energy Survey Begins to Reveal New Trans-Neptunian Objects”, universetoday.com, 1/7/2015