

Curriculum Vitae

Dr. Nathaniel James Tagg

Department of Physics, Otterbein University
One South Grove Street, Westerville, OH, 43081, USA
Phone: (614) 823-1358
<http://faculty.otterbein.edu/NTagg>
email: NTagg@otterbein.edu

Education

Ph.D: University of Guelph, Ontario, Canada, 2001.

M.Sc: University of Guelph, Ontario, Canada. 1996.

B.Sc: University of Lethbridge, B.Sc. with Great Distinction, 1991-93

Employment

2015-Present: Physics Department Chair at Otterbein University

2013-Present: Associate Professor of Physics at Otterbein University

2008-2013: Assistant Professor of Physics at Otterbein University

2006-2008: Visiting Scientist at Tufts University, for Brookhaven National Laboratory, on the Daya Bay reactor neutrino oscillation experiment

2005-2008: Visiting Scientist at Tufts University, High Energy Physics group, working on the MINOS long-baseline neutrino oscillation experiment

2001-2005: Postdoctoral Research assistant at Oxford University, working on the MINOS experiment. Supervisor: Alfons Weber.

Grants and Support

- Nathaniel Tagg (PI): “RUI: Neutrino Experiments at Fermilab” National Science Foundation, program for Research at Undergraduate Institutions. ~ \$140,000 to support research in experimental particle physics, including stipends for students. 2016-2018
- Nathaniel Tagg (PI): “RUI: Neutrino Experiments at Fermilab” (similar to above) 2013-15.
- Nathaniel Tagg (PI): “RUI: Neutrino Experiments with the NuMI Beam.” (similar to above) 2009-2012.
- Nathaniel Tagg (PI): Visitor support for extended travel to Fermilab to work on MINERvA project. Roughly \$6800 to support PI and two undergraduate students for one month. Awarded and used June 2011.

Teaching

Introductory Physics (Calculus based, with lab) (Phys 1500,1600), Otterbein 2014-16

Modern Physics with associated lab (Phys 2700), Otterbein, 2011-13

Physics for Future Presidents (Integrative Studies 2404), Otterbein, 2012-14

Classical Mechanics I and II (Phys 3000, 305), Otterbein, 2010-12

Nuclear and Particle Physics (Phys 440), Otterbein, 2011, 2017

Revolutions - relativity and quantum mechanics for a general audience (INST 240), Otterbein, 2010

Introductory Physics Laboratory (Phys 141, 143, 1200), Otterbein, 2009, 2010, 2012

Electronics (Phys 350), Otterbein, 2009, 2011, 2015, 2017

Advanced Physics Laboratory (Phys 320/420, 3500), Otterbein, 2008,2009, 2012, 2016

Introductory Physics (Algebra-based, Phys 121,122,123), Otterbein, 2008-2011

Professional Memberships and Service

Referee: Nuclear Instruments and Methods A, American Journal of Physics

Member: American Physical Society, American Association of Physics Teachers

Current Research Affiliations

MicroBooNE Experiment Collaboration

MINER ν A Experiment Collaboration (limited author)

MINOS+ Experiment Collaboration (legacy author)

Professional Development

Attended AAPT New Faculty Workshop, 2009

Member, Otterbein's Center for Teaching and Learning "New Faculty Teaching and Learning Community", 2009-10

Member, Otterbein's Center for Teaching and Learning "STEM Professional Learning Community", 2014-15

Publications

Papers in Refereed Journals

(The electronic version of this document contains hyperlinks to papers.)

1. **"Measurement of single π^0 production by coherent neutral-current ν Fe interactions in the MINOS Near Detector"** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **94**, no. 7, 072006 (2016)
2. **"Limits on Active to Sterile Neutrino Oscillations from Disappearance Searches in the MINOS, Daya Bay, and Bugey-3 Experiments"** P. Adamson *et al.* [Daya Bay and MINOS Collaborations]. Phys. Rev. Lett. **117**, no. 15, 151801 (2016)
3. **"Search for Sterile Neutrinos Mixing with Muon Neutrinos in MINOS"** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **117**, no. 15, 151803 (2016)

4. **“Evidence for Neutral-Current Diffractive π^0 Production from Hydrogen in Neutrino Interactions on Hydrocarbon”** J. Wolcott *et al.* [MINERvA Collaboration]. Phys. Rev. Lett. **117**, no. 11, 111801 (2016)
5. **“Measurement of the Multiple-Muon Charge Ratio in the MINOS Far Detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **93**, no. 5, 052017 (2016)
6. **“Measurement of Partonic Nuclear Effects in Deep-Inelastic Neutrino Scattering using MINERvA”** J. Mousseau *et al.* [MINERvA Collaboration]. Phys. Rev. D **93**, no. 7, 071101 (2016)
7. **“Measurement of Neutrino Flux from Neutrino-Electron Elastic Scattering”** J. Park *et al.* [MINERvA Collaboration]. arXiv:1512.07699 [physics.ins-det] Phys. Rev. D **93**, no. 11, 112007 (2016)
8. **“Identification of nuclear effects in neutrino-carbon interactions at low three-momentum transfer”** P. A. Rodrigues *et al.* [MINERvA Collaboration]. Phys. Rev. Lett. **116**, 071802 (2016)
9. **“Measurement of electron neutrino quasielastic and quasielasticlike scattering on hydrocarbon at $\langle E_\nu \rangle = 3.6$ GeV”** J. Wolcott *et al.* [MINERvA Collaboration]. Phys. Rev. Lett. **116**, no. 8, 081802 (2016)
10. **“The Detector System of The Daya Bay Reactor Neutrino Experiment”** F. P. An *et al.* [Daya Bay Collaboration]. arXiv:1508.03943 [physics.ins-det] Nucl. Instrum. Meth. A **811**, 133 (2016)
11. **“The NuMI Neutrino Beam”** P. Adamson *et al.*. arXiv:1507.06690 [physics.acc-ph] Nucl. Instrum. Meth. A **806**, 279 (2016)
12. **“Precision measurement of the speed of propagation of neutrinos using the MINOS detectors”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **92**, no. 5, 052005 (2015)
13. **“Observation of Seasonal Variation of Atmospheric Multiple-Muon Events in the MINOS Near and Far Detectors”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **91**, no. 11, 112006 (2015)
14. **“Single neutral pion production by charged-current $\bar{\nu}_\mu$ interactions on hydrocarbon at $\langle E_\nu \rangle = 3.6$ GeV”** T. Le *et al.* [MINERvA Collaboration]. Phys. Lett. B **749**, 130 (2015)
15. **“A Proposal for a Three Detector Short-Baseline Neutrino Oscillation Program in the Fermilab Booster Neutrino Beam”** M. Antonello *et al.* [MicroBooNE and LAr1-ND and ICARUS-WA104 Collaborations]. arXiv:1503.01520 [physics.ins-det]
16. **“MINERvA neutrino detector response measured with test beam data”** L. Aliaga *et al.* [MINERvA Collaboration]. arXiv:1501.06431 [physics.ins-det] Nucl. Instrum. Meth. A **789**, 28 (2015)
17. **“Study of quasielastic scattering using charged-current ν_μ -iron interactions in the MINOS near detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **91**, no. 1, 012005 (2015)
18. **“Measurement of muon plus proton final states in ν_μ interactions on hydrocarbon at $\langle E_\nu \rangle = 4.2$ GeV”** T. Walton *et al.* [MINERvA Collaboration]. Phys. Rev. D **91**, no. 7, 071301 (2015)
19. **“Measurement of Coherent Production of π^\pm in Neutrino and Antineutrino Beams on Carbon from E_ν of 1.5 to 20 GeV”** A. Higuera *et al.* [MINERvA Collaboration]. Phys. Rev. Lett. **113**, no. 26, 261802 (2014)
20. **“Observation of muon intensity variations by season with the MINOS Near Detector”** P. Adamson *et al.*. Phys. Rev. D **90**, no. 1, 012010 (2014)
21. **“Charged pion production in ν_μ interactions on hydrocarbon at $\langle E_\nu \rangle = 4.0$ GeV”** B. Eberly *et al.* [MINERvA Collaboration]. Phys. Rev. D **92**, no. 9, 092008 (2015)
22. **“Measurement of Ratios of ν_μ Charged-Current Cross Sections on C, Fe, and Pb to CH at Neutrino Energies 2-20 GeV”** B. G. Tice *et al.* [MINERvA Collaboration]. Phys. Rev. Lett. **112**, no. 23, 231801 (2014)

23. **“Combined analysis of ν_μ disappearance and $\nu_\mu \rightarrow \nu_e$ appearance in MINOS using accelerator and atmospheric neutrinos”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **112**, 191801 (2014)
24. **“Results from the Daya Bay Reactor Neutrino Experiment”** K. V. Tsang *et al.*. Nucl. Phys. Proc. Suppl. **246-247**, 18 (2014).
25. **“Design, Calibration, and Performance of the MINERvA Detector”** L. Aliaga *et al.* [MINERvA Collaboration]. arXiv:1305.5199 [physics.ins-det] Nucl. Instrum. Meth. A **743**, 130 (2014)
26. **“Measurement of Muon Neutrino Quasielastic Scattering on a Hydrocarbon Target at E3.5GeV”** G. A. Fiorentini *et al.* [MINERvA Collaboration]. Phys. Rev. Lett. **111**, 022502 (2013)
27. **“Measurement of Muon Antineutrino Quasielastic Scattering on a Hydrocarbon Target at E3.5GeV”** L. Fields *et al.* [MINERvA Collaboration]. Phys. Rev. Lett. **111**, no. 2, 022501 (2013)
28. **“Measurement of Neutrino and Antineutrino Oscillations Using Beam and Atmospheric Data in MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **110**, no. 25, 251801 (2013)
29. **“Search for flavor-changing non-standard neutrino interactions by MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **88**, no. 7, 072011 (2013)
30. **“Electron neutrino and antineutrino appearance in the full MINOS data sample”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **110**, no. 17, 171801 (2013)
31. **“Comparisons of annual modulations in MINOS with the event rate modulation in Co-GeNT”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **87**, no. 3, 032005 (2013)
32. **“Improved Measurement of Electron Antineutrino Disappearance at Daya Bay”** F. P. An *et al.* [Daya Bay Collaboration]. Chin. Phys. C **37**, 011001 (2013)
33. **“Measurements of atmospheric neutrinos and antineutrinos in the MINOS Far Detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **86**, 052007 (2012)
34. **“Demonstration of Communication using Neutrinos”** D. D. Stancil *et al.* [MINERvA Collaboration]. Mod. Phys. Lett. A **27**, 1250077 (2012)
35. **“An improved measurement of muon antineutrino disappearance in MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **108**, 191801 (2012)
36. **“Search for Lorentz invariance and CPT violation with muon antineutrinos in the MINOS Near Detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **85**, 031101 (2012)
37. **“Arachne - A web-based event viewer for MINERvA”** N. Tagg *et al.* [MINERvA Collaboration]. Nucl. Instrum. Meth. **676**, 44 (2012)
38. **“Search for the disappearance of muon antineutrinos in the NuMI neutrino beam”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **84**, 071103 (2011)
39. **“Improved search for muon-neutrino to electron-neutrino oscillations in MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **107**, 181802 (2011)
40. **“MINOS+: a Proposal to FNAL to run MINOS with the medium energy NuMI beam”** G. Tzanankos *et al.* [MINOS+ Collaboration]. FERMILAB-PROPOSAL-1016
41. **“Active to sterile neutrino mixing limits from neutral-current interactions in MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **107**, 011802 (2011)
42. **“First direct observation of muon antineutrino disappearance”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **107**, 021801 (2011)
43. **“Measurement of the Neutrino Mass Splitting and Flavor Mixing by MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **106**, 181801 (2011)

44. **“Measurement of the underground atmospheric muon charge ratio using the MINOS Near Detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **83**, 032011 (2011)
45. **“Observation in the MINOS far detector of the shadowing of cosmic rays by the sun and moon”** P. Adamson *et al.* [MINOS Collaboration]. Astropart. Phys. **34**, 457 (2011)
46. **“A Search for Lorentz Invariance and CPT Violation with the MINOS Far Detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **105**, 151601 (2010)
47. **“New constraints on muon-neutrino to electron-neutrino transitions in MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **82**, 051102 (2010)
48. **“Search for sterile neutrino mixing in the MINOS long baseline experiment”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **81**, 052004 (2010)
49. **“Neutrino and Antineutrino Inclusive Charged-current Cross Section Measurements with the MINOS Near Detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **81**, 072002 (2010)
50. **“Search for muon-neutrino to electron-neutrino transitions in MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **103**, 261802 (2009)
51. **“Observation of muon intensity variations by season with the MINOS far detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **81**, 012001 (2010)
52. **“Measurement of the Cosmic Ray and Neutrino-Induced Muon Flux at the Sudbury Neutrino Observatory”** B. Aharmim *et al.* [SNO Collaboration]. Phys. Rev. D **80**, 012001 (2009)
53. **“Comparisons of the MINOS Near and Far Detector Readout Systems at a Test Beam”** A. Cabrera *et al.* [MINOS Collaboration]. arXiv:0902.1116 [physics.ins-det] Nucl. Instrum. Meth. A **609**, 106 (2009)
54. **“Sudden stratospheric warmings seen in MINOS deep underground muon data”** S. Osprey *et al.* [MINOS Collaboration]. Geophys. Res. Lett. **36**, L05809 (2009).
55. **“Search for active neutrino disappearance using neutral-current interactions in the MINOS long-baseline experiment”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **101**, 221804 (2008)
56. **“Testing Lorentz Invariance and CPT Conservation with NuMI Neutrinos in the MINOS Near Detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **101**, 151601 (2008)
57. **“Measurement of Neutrino Oscillations with the MINOS Detectors in the NuMI Beam”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **101**, 131802 (2008)
58. **“The Magnetized steel and scintillator calorimeters of the MINOS experiment”** D. G. Michael *et al.* [MINOS Collaboration]. arXiv:0805.3170 [physics.ins-det] Nucl. Instrum. Meth. A **596**, 190 (2008)
59. **“A Study of Muon Neutrino Disappearance Using the Fermilab Main Injector Neutrino Beam”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **77**, 072002 (2008)
60. **“The NOvA Technical Design Report”** D. S. Ayres *et al.* [NOvA Collaboration]. FERMILAB-DESIGN-2007-01
61. **“Measurement of neutrino velocity with the MINOS detectors and NuMI neutrino beam”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **76**, 072005 (2007)
62. **“Measurement of the atmospheric muon charge ratio at TeV energies with MINOS”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **76**, 052003 (2007)
63. **“Charge-separated atmospheric neutrino-induced muons in the MINOS far detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **75**, 092003 (2007)

64. **“A Precision measurement of the neutrino mixing angle θ_{13} using reactor antineutrinos at Daya-Bay”** X. Guo *et al.* [Daya Bay Collaboration].
65. **“Determination of the ν_e and total ^8B solar neutrino fluxes with the Sudbury neutrino observatory phase I data set”** B. Aharmim *et al.* [SNO Collaboration]. Phys. Rev. C **75**, 045502 (2007)
66. **“Observation of muon neutrino disappearance with the MINOS detectors and the NuMI neutrino beam”** D. G. Michael *et al.* [MINOS Collaboration]. Phys. Rev. Lett. **97**, 191801 (2006)
67. **“First MINOS results from the NuMI beam”** N. Tagg [MINOS Collaboration]. eConf C **060409**, 019 (2006) FERMILAB-CONF-06-130-E, FPCP06-232, FPCP-2006-019
68. **“The MINOS calibration detector”** P. Adamson *et al.*. Nucl. Instrum. Meth. A **556**, 119 (2006).
69. **“First observations of separated atmospheric $\nu(\mu)$ and anti- $\nu(\mu)$ events in the MINOS detector”** P. Adamson *et al.* [MINOS Collaboration]. Phys. Rev. D **73**, 072002 (2006)
70. **“Performance of Hamamatsu 64-anode photomultipliers for use with wavelength-shifting optical fibres”** N. Tagg *et al.*. physics/0408055 Nucl. Instrum. Meth. A **539**, 668 (2005) NUMI-PUB-SCINT-1040
71. **“NOvA: Proposal to build a 30 kiloton off-axis detector to study $\nu(\mu)$ o $\nu(e)$ oscillations in the NuMI beamline”** D. S. Ayres *et al.* [NOvA Collaboration]. FERMILAB-PROPOSAL-0929
72. **“The MINOS data acquisition system”** A. Belias *et al.*. IEEE Trans. Nucl. Sci. **51**, 451 (2004).
73. **“Neutral current and day night measurements from the pure D-2_O phase of SNO”** A. L. Hallin *et al.*. Nucl. Phys. Proc. Suppl. **118**, 3 (2003).
74. **“The MINOS experiment”** N. Tagg [MINOS Collaboration].
75. **“Direct evidence for neutrino flavor transformation from neutral-current interactions in SNO”** A. B. McDonald *et al.* [SNO Collaboration]. AIP Conf. Proc. **646**, 43 (2003).
76. **“Solar neutrino observations at the Sudbury Neutrino Observatory”** A. W. P. Poon *et al.* [SNO Collaboration]. eConf C **020805**, TTH01 (2002) SSI-2002-TTH01
77. **“Letter of Intent to build an Off-axis Detector to study ν_{μ} to ν_e oscillations with the NuMI Neutrino Beam”** D. Ayres *et al.*.
78. **“Measurement of day and night neutrino energy spectra at SNO and constraints on neutrino mixing parameters”** Q. R. Ahmad *et al.* [SNO Collaboration]. Phys. Rev. Lett. **89**, 011302 (2002)
79. **“Direct evidence for neutrino flavor transformation from neutral current interactions in the Sudbury Neutrino Observatory”** Q. R. Ahmad *et al.* [SNO Collaboration]. Phys. Rev. Lett. **89**, 011301 (2002)
80. **“The Li-8 calibration source for the Sudbury Neutrino Observatory”** N. J. Tagg, A. Hamer, B. Sur, E. D. Earle, R. L. Helmer, G. Jonkmans, B. A. Moffat and J. J. Simpson. Nucl. Instrum. Meth. A **489**, 178 (2002)
81. **“Neutrino observations from the Sudbury Neutrino Observatory”** A. W. P. Poon *et al.* [SNO Collaboration]. AIP Conf. Proc. **610**, 218 (2002)
82. **“The N-16 calibration source for the Sudbury Neutrino Observatory”** M. R. Dragowsky *et al.*. Nucl. Instrum. Meth. A **481**, 284 (2002)
83. **“Measurement of CC interactions produced by ^8B solar neutrinos at SNO”** A. B. McDonald *et al.* [SNO Collaboration]. PoS hep **2001**, 186 (2001).
84. **“First results from the Sudbury Neutrino Observatory”** A. McDonald *et al.*.

85. **“Measurement of the rate of $\nu_e + d \rightarrow p + p + e^-$ interactions produced by 8B solar neutrinos at the Sudbury Neutrino Observatory”** Q. R. Ahmad *et al.* [SNO Collaboration]. Phys. Rev. Lett. **87**, 071301 (2001) UPR-0240E
86. **“The Lithium 8 calibration source and through going muon analysis in the Sudbury Neutrino Observatory”** N. J. Tagg. UMI-NQ-65836
87. **“The Sudbury neutrino observatory”** J. Boger *et al.* [SNO Collaboration]. Nucl. Instrum. Meth. A **449**, 172 (2000)
88. **“Time-Symmetry: An Application to Shaped Pulse Excitation of Spin-1 Systems”**
S. Habot, D. Lu, N. Tagg, G. Gall, and D. Siminovitch
Solid State NMR, **10**, pp. 111-184, (1998)
89. **“The Role of Transfer Functions in Evaluating Composite-Pulse or Shaped-Pulse Excitation of Spin-1 Systems”**
D. Siminovitch and N. Tagg
Journal of Magnetic Resonance A, **108**, pp.82-88 (1994)

Conferences and Proceedings

1. **“Results from the First year of Beam with MINOS”**
N. Tagg [MINOS Collaboration]
Aspen Winter Conference on Neutrinos in Physics and Astrophysics, Aspen, Jan., 2007
2. **“First MINOS results from the NuMI beam”**
N. Tagg [MINOS Collaboration] [arXiv:hep-ex/0605058]
(First conference presentation of MINOS results.)
In the Proceedings of 4th Flavor Physics and CP Violation Conference (FPCP 2006), Vancouver, British Columbia, Canada, 9-12 Apr 2006
3. **“The MINOS experiment”**
N. Tagg [MINOS Collaboration]
Prepared for 2nd International Workshop on Neutrino Oscillations in Venice (NO-VE 2003), Venice, Italy, 3-5 Dec 2003
4. **“ ‘High Energy’ Physics in the Sudbury Neutrino Observatory”**
N. Tagg [SNO Collaboration]
10th International School of Particles and Cosmology, Baksan Valley, Kabardino-Balkaria, Russia, April 1999.

Posters

1. **Arachne: An Web-Based Event Display For Education And Outreach,**
N. Tagg for the MINERvA Collaboration,
Neutrino 2012, Kyoto, Japan, June 2012
2. **“Through-Going Muons in the Sudbury Neutrino Observatory”**
N. Tagg and C. Waltham [SNO Collaboration]
Canadian Association Of Physicists Congress, Waterloo, June 1998.

Invited Talks and Seminars

- **“Faster Than Light Neutrinos?”**, Graduate seminar, University of Indiana, Nov, 2012.
- **“The Ghost Particles: Experimental Neutrino Physics”**, Junior Faculty Colloquium Series, Otterbein University, Apr, 2010.
- **“Daya Bay Software Tutorial”**, Various teachers, IHEP Beijing, Dec, 2007.
- **“The MINOS Experiment”**, Seminar at University of Wisconsin at Madison, April, 2007.

- **“Neutrino Oscillations and the MINOS Results”**, Colloquium at Ohio University, Jan., 2007.
- **“Calibrating the ‘Identical’ MINOS Detectors”**, Seminar at Argonne National Lab, Dec 2006.
- **“Neutrino Oscillations and the MINOS Results”**, Colloquium at Brandeis University, Sept 2006.
- **“First MINOS Results from the NuMI Beam”**, Henderson DUESEL Capstone workshop, Stony Brook, May 2006.
- **“First MINOS Results from the NuMI Beam”**, Seminars at Tufts University and the University of British Columbia, April 2006.
- **“First MINOS results from the NuMI beam”**, Flavor Physics and CP Violation Conference (FPCP 2006), Vancouver, British Columbia, Apr 2006
- **“Muons Through SNO”**, Seminar, University of Sheffield, November 2001.
- **“Muons Through SNO”**, Seminar, Oxford University, May 2001
- **“The Sudbury Neutrino Observatory”**, University of Lethbridge, December 1999.

Service to School and Students

Otterbein: Senator (2014-present)

Otterbein: Physics Department Chair (2015-present)

Otterbein: Science Lecture Series committee (2009-present)

Otterbein: Departmental liaison to academic assessment group (2010-2015)

Otterbein: Teaching/Learning/Technology (TLT) committee (one year: 2011-2012)

Otterbein: Curriculum Committee (two years: 2010-2012)

Otterbein: Academic advisor to students (2009-present)

Otterbein: Recruitment session presenter (2009-present)