
CURRICULUM VITAE

EMILY MAHER

Massachusetts College of Liberal Arts
Physics Department
375 Church St.
North Adams, MA 01247

Phone: (413) 662-5268
Email: emily.maher@mcla.edu

EDUCATIONAL BACKGROUND

- 09/99–10/05 University of Minnesota, Minneapolis, MN.
Ph.D., Department of Physics, Emphasis on experimental high energy physics.
Thesis: “A Measurement of the Interaction Charged-Current Cross Section of the Tau Neutrino”.
- 09/95–05/99 Hendrix College, Conway, AR.
Bachelors of Arts, Department of Physics.

TEACHING EXPERIENCE AND ACTIVITIES

- 06/06 Workshop Leader at an Expanding Your Horizons conference, a career conference designed to nurture girls’ interest in science and mathematics, Berkshire Community College, Pittsfield, MA.
- 05/07 - present Judge for local and regional middle and high school science fairs.
- 09/06 - present Assistant Professor, Massachusetts College of Liberal Arts, North Adams, MA.
- 08/05 - 09/06 Visiting Assistant Professor, College of the Holy Cross, Worcester, MA.
- 01/05–05/05 Adjunct Professor, University of St. Thomas, St. Paul, MN.
Modern Physics.
- 11/04 Workshop Leader at an Eye to the the Future conference, a career conference for young women in math and science, Augsburg College, Minneapolis, MN.
- 09/03–12/03 Teaching Assistant, University of Minnesota, Minneapolis, MN.
Methods of Experimental Physics I. Included digital and analog electronics and experimental methods.

- 09/03–12/03 Completed a course in the Preparing Future Faculty program entitled, “Teaching in Higher Education”. The PFF program provides a teaching and learning forum for graduate students. Program participants discuss learning theory and strategies, develop teaching and assessment skills, and create classroom materials.
- 06/03–08/03 Supervised students during a Research Experience for Undergraduates (REU) summer program at the University of Minnesota.
- 06/02–08/02 Co-taught course, University of Minnesota, Minneapolis, MN. *Introductory Physics for Science and Engineering I*. Taught this course with Professor Jim Eckert (Harvey Mudd College). We devised homeworks and exams together. We also shared the lectures.
- 01/02–05/02 Supervised undergraduate student in research project.
- 09/00–12/00 Head Teaching Assistant.
Introductory College Physics I. Was responsible for organizing other TA’s and meetings in addition to the normal TA responsibilities.
- 09/99–05/01 Teaching Assistant.
Fall: *Introductory Physics for Science and Engineering I*.
Spring: *Introductory Physics for Science and Engineering II*.
- 09/97–05/03 Private Tutor.
Tutored students in physics at the college level.

RESEARCH EXPERIENCE

- 09/07 - present Collaborator in MINER ν A (Main INjector ExepeRiment for ν -A), Fermilab Experiment 938, North Adams, MA.
Working with an undergraduate student on the calibration of the data. Will aid in the construction of the detector in Summer 2009.
- 01/01–09/05 Research Assistant, DONuT (Direct Observation of Nu Tau), Fermilab Experiment 872, Minneapolis, MN.
Refined event location analysis software in an emulsion detector for the purposes of discovering the first interactions of the tau neutrino. Refined probability analysis for tau neutrino events. Measured the first interaction cross section of the tau neutrino.

- 06/01–08/02 Research Assistant, MINOS (Main Injector Neutrino Oscillation Search), Fermilab Experiment 875, Minneapolis, MN and Soudan, MN.
Constructed parts of the far detector for the MINOS experiment which is looking for neutrino oscillations. Installed and debugged electronics for data acquisition.
- 06/99–08/99 Research Assistant, Fermilab Experiment 872, Minneapolis, MN.
Located neutrino events in emulsion data using software algorithms.
- 05/98–03/99 Research Assistant, Hendrix College, Conway AR.
Developed methods to detect metallic ions in the plume of rockets. Contributed to the development of a ring laser gyroscope to measure variations in Earth's rate of rotation.

CONFERENCES AND WORKSHOPS

- 08/08 Attended the Science Education for New Civic Engagement Summer Institute, Santa Clara, CA.
- 10/07 Hosted MCLA Workshop on Hardware and Calibration Databases for MINER ν A, North Adams, MA.
- 07/07 Attended American Association of Physics Teachers Conference, Greensboro, NC
- 07/07 Attended Workshops: "Learning Physics While Practicing Science", "Physics by Inquiry", and "Advanced and Intermediate Instructional Laboratories", Greensboro, NC
- 05/07 Attended Fifth International Workshop on Neutrino-Nucleon Interactions in the Few-GeV Region, Fermi National Accelerator Laboratory, Batavia, IL
- 05/07 Attended Main INjector ExpeRiment for ν -A (MINER ν A) collaboration meeting, Fermi National Accelerator Laboratory, Batavia, IL
- 01/07 Attended SENCER (Science Education for New Civic Engagements and Responsibilities) New England Regional Symposium, Springfield, MA
- 08/04 Attended the American Association of Physics Teachers Conference, Sacramento, CA.
- 11/03 Attended 2003 CIRTL (Center for the Integration of Research, Teaching, and Learning) Forum, Madison WI.
- 05/02 Attended the American Physics Society Division of Particles and Fields meeting, Williamsburg, VA.

- 04/99 Attended the National Conference on Undergraduate Research, Rochester, NY.
- 03/99 Attended the American Physics Society, Atlanta, GA
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AWARDS AND OTHER ACTIVITIES

- 2008 Awarded a Cottrell College Science Award from the Research Corporation, a foundation for the advancement of science.
- 2008 Awarded a Faculty Incentive Award for Research Projects from MCLA.
- 2007-2008 Received Title 3 Project Grant for academic technology advancement from MCLA.
- 2007-present Served on MCLA Curriculum Committee.
- 2006-present Participated in the CASTL Roundtable program at MCLA
- 2004 President's Student Leadership and Service Award, University of Minnesota.
- 2003 Created and served as an officer for a mentoring program for first year graduate students in the physics department at the University of Minnesota.
- 2003 Served as an officer for the Women In Physics and Astronomy group, University of Minnesota.
- 2002 Lobbied for increased funding to the US Department of Energy Office of Science during the 2002 Congressional session, Washington, District of Columbia.
- 2001 Outstanding TA Award, University of Minnesota.
- 1999 Graduated with highest distinction, Hendrix College.
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PROFESSIONAL AND ACADEMIC AFFILIATIONS

- 2004-present American Association of Physics Teachers
- 1999-present Sigma Pi Sigma: The National Physics Honor Society
- 1998-present American Physical Society
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PUBLICATIONS

- 2008 "A First Measurement of the Interaction Cross Section of the Tau Neutrino", K. Kodama, *et. al.*, To Be Submitted to Phys. Rev. D.

- 2006 “Observation of Muon Neutrino Appearance with the MINOS Detectors in the NuMI Neutrino Beam”, D. G. Michael, *et. al.*, Phys. Rev. Lett. 97, 191801 (2006).
- 2006 “First Observation of Separated Atmospheric Muon Neutrino and Muon Anti-neutrino Events in the MINOS Detector”, P. Adamson *et. al.*, Phys. Rev. Lett. 97, 191801 (2006).
- 2003 “Users Guide to the FarDet DAQ System”, NuMI-Note-900, with J. Hartnell and A. Rahman.
- 2001 “Muon Containment in the Near Detector”, NuMI-Note-702, with J. Nelson.

SELECTED PRESENTATIONS

- 09/07 “Massachusetts College of Liberal Arts Application to Join MINER ν A”, presented at a MINER ν A collaboration meeting at Fermilab, Batavia, IL.
- 10/05 “Measuring the Tau Neutrino Charged-Current Cross Section”, presented at the High Energy Physics Seminar at the University of Minnesota, Minneapolis, MN.
- 05/05 “Results of Parameter Analysis of Tau Neutrino and Charm Candidates”, presented at Nagoya University, Nagoya, Japan.
- 03/05 “The First Measurement of the CC Cross Section of the Tau Neutrino”, presented at the High Energy Physics seminar at the University of Pennsylvania, University Park, PA.
- 08/04 “Creating a Mentoring Program for New Graduate Students”, presented at the American Association of Physics Teachers meeting, Sacramento, CA.
- 08/04 “New Results from the DONuT Experiment”, presented at the physics seminar at the University of Hawaii, Honolulu, HI.
- 07/03 “Status Report from the DONuT Experiment”, presented at the Department of Energy Review, University of Minnesota, Minneapolis, MN.
- 04/03 “New Nu’s from the DONuT Experiment”, presented at the High Energy Physics seminar at the University of Minnesota, Minneapolis, MN.
- 05/02 “Further Results from the DONuT Collaboration”, presented at American Physics Society Division of Particles and Fields meeting, Williamsburg, VA.
- 04/99 “Monitoring Metallic Compounds in Rocket Plumes”, presented at the National Conference on Undergraduate Research, Rochester, NY.

REFERENCES

Dr. Kenneth Heller
Thesis supervisor Phone: (612) 624-7314
116 Church Street S.E. Fax: (612) 624-4578
University of Minnesota Email: heller@mnhep.hep.umn.edu
Minneapolis, MN 55455

Dr. James Eckert
Professor of Physics
Harvey Mudd College Phone: (909) 607-2726
Department of Physics Fax: (909) 621-8887
301 E. 12th St. Email: james_eckert@hmc.edu
Claremont, CA 91711

Dr. De-Ping Yang
Associate Professor and Chair
College of the Holy Cross Phone: (508) 793-2463
Physics Department Fax: (508) 793-3367
1 College Street Email: dyang@holycross.edu
Worcester, MA 01610

Dr. Vittorio Paolone
Associate Professor
University of Pittsburgh Phone: (412) 624-2764
200E Allen Hall Fax: (412) 624-9163
3941 O'Hara St. Email: paolone@fritter.phyast.pitt.edu
Pittsburgh, PA 15260

Dr. Adrienne Wootters
Associate Professor and Chair
Massachusetts College of Liberal Arts Phone: (413) 662-5459
Physics Department
375 Church St. Email: adrienne.wootters@mcla.edu
North Adams, MA 01247
