

Mariel Meier

[Mariel Desroche]

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Education

Ph.D., **Physics**, University of Colorado, Boulder, 2012. Advisor: Fran Bagenal, APS dept. CU Boulder.

B.A., **Physics**, Smith College, Northampton, MA, 2006.

Teaching Experience

Assistant Professor of Physics , Physics Department, Oglethorpe University	2015 - present
Part-Time Instructor , Physics Department, Agnes Scott College	2013-2014
Part-Time Instructor , Georgia Perimeter College Dunwoody	2013-2014
Textbook Solution Manual Author , online	2013-2014
Part-Time Instructor , Physics Dept. Red Rocks Community College	Spring 2013
Volunteer Teaching Assistant , Physics Dept. CU Boulder	Fall 2012
Lead Teaching Assistant , Physics Dept. CU Boulder	2007-2008
Teaching Assistant , Physics Dept. CU Boulder	2006-2007
Personal Tutor , Northampton, MA and Boulder, CO	2004-2013
Peer Tutor , Smith College	2003-2006

Courses Developed and Taught at Oglethorpe

Introduction to Descriptive Astronomy , PHY 100	Fall '15, Spring '17, Spring '20
General Physics I , PHY 101	Fall '15, '16, '17, '18
Introductory Physics Lab I , PHY 101L	Fall '15, Summer '16, Fall '16, Summer '17
General Physics II , PHY 102	Spring '16, '17, '18, '19, '20
Introductory Physics Lab II , PHY 102L	Spring '16, Summer '16, Spring '17, Summer '17, Spring '18
Fundamentals of Electronics , PHY 232	Spring '16, Fall '17
Fundamentals of Electronics Lab , PHY 232L	Spring '16, Fall '17
Electricity and Magnetism , PHY 331	Fall '16, Spring '18, Spring '20
Modern Physics , PHY 203	Fall '16, Fall '17, Fall '18

Modern Physics Lab, PHY 203L	Fall '17, '18
Computational Physics, PHY 206	Spring '19
Thermal Physics, PHY 333	Spring '17, Fall '18
Quantum Mechanics, PHY 334	Spring '18, '20
Science & Human Nature, COR 400	Spring '18, Spring '19, Summer '19, Spring '20, Summer '20

Professional Development

American Association of Physics Teachers Workshop , “Introduction to Using Robotic Telescopes in Student Research”, Houston, TX	January 2019
American Association of Physics Teachers Workshop , “Intermediate and Advanced Labs”, Washington, D.C.	July 2018
American Association of Physics Teachers Workshop , “3D Solid Modeling”, Washington, D.C.	July 2018
Advanced Laboratory Physics Association Workshop , “Physics & the Human Body”, Loyola University, Maryland	June 2017
AAPT Faculty Online Community Member	August 2016-May 2017
AAPT New Physics Faculty Workshop , Baltimore, Maryland	June, 2016
Assessment in Mathematics and Science Education Course , Education Dept. CU Boulder	Spring 2007
Teaching and Learning Physics Course , Physics Dept. CU Boulder	Fall 2006
Graduate Teacher Program seminars , CU Boulder	2006-2012

Awards

NASA Earth and Space Science Fellowship	2009-2012
Title: “Modeling the Outer Magnetosphere and its Coupling to the Solar Wind”.	

Research Experience

Graduate Research Assistant , LASP, Boulder	2008-2012
Mentors: Dr. Fran Bagenal & Dr. Peter Delamere	
Modeling the interaction of the solar wind with the magnetic field and plasma around Jupiter.	

- Graduate Research Assistant**, PER group, Boulder 2007-2008
 Mentor: Dr. Noah Finkelstein
 Impact of teacher training on undergraduate and graduate teaching assistants.
- Undergraduate Research Assistant**, Smith College 2005-2006
 Mentor: Dr. Doreen Weinberger
 Measuring the refractive indices of crystals.
- Undergraduate Research Assistant**, Smith College 2003-2005
 Mentor: Dr. Gary Felder
 Simulations of spontaneous symmetry breaking in new inflation.
- Undergraduate Research Assistant**, University of Chicago Summer 2005
 Analysis of Cherenkov radiation observations by a large scale telescope array.

Publications & Presentations

- M. Meier**, Challenging Student Ideas About Religion in a General Education Course, *AAPT Summer Meeting 2020*.
- Howard, D and **M. Meier**, Meeting Laboratory Course Learning Goals Remotely via Custom Home Experiment Kits, *submitted for publication*.
- Meier, M.**, (presentation), Everything we knew about Jupiter was wrong: Juno and the process of science, *Thomas W. Chandler Lecture Series, Oglethorpe University*.
- Ponce, Iris Daniela and **M. Meier**, (poster), Rotation of the interplanetary magnetic field in Saturn’s magnetosheath, *Magnetospheres of the Outer Planets Meeting 2018*.
- Ponce, Iris Daniela and **M. Meier**, (poster), Rotation of the interplanetary magnetic field in the Jovian and Kronian magnetosheaths, *AGU Fall Meeting 2017*.
- Meier, M.**, (poster), Improving Student Attitudes and Beliefs with Primary Literature, *AAPT Winter Meeting 2017*.
- Wilson, R.J., F. Bagenal, P.A. Delamere, **M. Desroche**, B.L. Fleshman, and V. Dols, Radial velocity evidence of an electric field in Saturn’s inner magnetosphere, *J. Geophys. Res.*, 2013.
- Desroche, M.**, F. Bagenal, P.A. Delamere, and N. Erkaev, (presentation), Magnetopause conditions at Jupiter and Saturn and implications for the solar wind interaction, *AGU Fall Meeting 2012*.
- Desroche, M.**, F. Bagenal, P.A. Delamere, and N. Erkaev, Conditions at Saturn’s magnetopause and implications for the solar wind interaction, *J. Geophys. Res.*, 2013.
- Desroche, M.**, F. Bagenal, P.A. Delamere, and N. Erkaev, Conditions at the expanded jovian magnetopause and implications for the solar wind interaction, *J. Geophys. Res.*, 2012.

- Desroche, M.,** F. Bagenal, P.A. Delamere, N. Erkaev, C.S. Arridge, C. J. Farrugia, and B. Helfried, (poster), A comparison of the interaction of the solar wind with the Jovian and Kronian magnetospheres, *AGU Fall Meeting 2011*.
- Desroche, M.,** (presentation), Conditions at the jovian magnetopause and implications for the solar wind interaction, *Friends of the Magnetospheres Seminar*, LASP – CU Boulder, 2011.
- Desroche, M.,** (presentation), The interaction between the solar wind and Jupiter’s magnetosphere, *Magnetospheres of the Outer Planets Meeting 2011*.
- Desroche, M.,** F. Bagenal, and P.A. Delamere, (poster), Potential reconnection sites at Jupiter’s magnetopause, *AGU Fall Meeting 2010*.
- Desroche, M.,** (presentation), Modeling the solar wind interaction with Jupiter’s magnetosphere, *CIPS seminar*, physics dept. – CU Boulder, 2010..
- Desroche, M.J.,** F. Bagenal, and P.A. Delamere, (poster), Modeling dynamics in Jupiter’s outer magnetosphere and its interaction with the solar wind, *Magnetospheres of the Outer Planets Meeting 2009*.
- Desroche, M.,** F. Bagenal, and P.A. Delamere, (poster), Potential reconnection configurations and flows at Jupiter’s magnetopause, *AGU Fall Meeting 2009*.
- Desroche, M.,** F. Bagenal, and W.R. Paterson, (poster), Preliminary Model of Jupiter’s Plasma Sheet, *AGU Fall Meeting 2008*.
- Desroche, M.,** (2006), Determination of the refractive indices of solids by total reflection, *Honors Thesis*, Smith College, Northampton MA.
- Desroche, M.,** G.N. Felder, J. M. Kratochvil, and A. Linde, (2005), Preheating in new inflation, *Phys. Rev. D.*, **71**, 103516.

Affiliations & Memberships

AAPT Committee on Contemporary Physics , member	2018-current
American Association of Physics Teachers , member	2015-current
American Physical Society , member	2013-current
American Geophysics Union , member	2008-2013, 2015-current
Phi Beta Kappa	2006

Service at Oglethorpe

Faculty Council , member	Fall 2020 – present
President’s Cabinet , Division III representative	Fall 2020 - present
Core Committee , COR 400 representative	Fall 2018 - present

Chemistry Faculty Search Committee, member	Spring 2018, Spring 2019, Fall 2019
Head Librarian Search Committee, member	Fall 2017
Compass Advisor	Fall 2017-Spring 2019
Women's Tennis Team Faculty Mentor	Spring 2017-present
Compass Director Search Committee, member	Spring 2017
ITC Committee, chair	Fall 2016-Spring 2017
APC Committee, member	Fall 2016-Spring 2017
JEO scholarship weekend, seminar leader	Spring 2016, Spring 2017, Spring 2018, Spring 2019
QEP Committee, member	Spring 2016 - present
ITC Committee, member	Fall 2015-Spring 2016, Fall 2017 - current
Sigma Zeta, faculty advisor	Fall 2015 -present
Outdoors Club, faculty advisor	Fall 2015 - present
Physics Program Coordinator	Fall 2015-present