

PROGRAM



Physics Illinois

Message from the Dean



Welcome to the University of Illinois at Urbana-Champaign. We are proud to be the host institution for the 6th Annual Midwest Conference for Undergraduate Women in Physics.

Creative and innovative thinkers, just like you, come here from all over the world to study, to share their interests and cultures, and to discover. Together, we endeavor to explain the past and imagine the future. We uncover

nature's inner-most secrets—from the nanoscale to the astronomical—and we harness this knowledge to develop new technologies that will benefit humanity, improve lives, and preserve our environment.

The Department of Physics at Illinois consistently ranks among the best graduate and undergraduate physics programs in the world. Our culture has collaboration at its heart. You don't have to walk very far across campus to see world-class experts from a variety of disciplines working together to address a major problem or drive innovation in a new direction.

This weekend, you will connect with other women in physics with whom you can share experiences, advice, and ideas. Again, welcome to our campus and best wishes for an enjoyable conference!

Michael B. Bragg
Interim Dean, College of Engineering



Message from the Head



Welcome!

Thank you for attending the 6th Midwest Conference for Undergraduate Women in Physics. On behalf of our faculty, staff and students, I welcome you to the Department of Physics at the University of Illinois at Urbana-Champaign.

We are very excited to have the opportunity to host more than 250 women students from 80 different schools across the Midwest region, along with 25 speakers and panelists from academia, industry, national laboratories, and the federal government. To our knowledge, you are part of the largest conference of this type ever held, and we value your participation.

Physics Illinois has a proud and distinguished history and we are ranked among the top ten departments nationally. Our physicists conduct leading-edge research in condensed matter physics, atomic-molecular-optical physics, astrophysics/cosmology, biological physics, and high energy and nuclear physics. From the discovery of the theory of superconductivity, to the development of the National Center for Supercomputing Applications, to pioneering work in nuclear magnetic resonance, Physics Illinois has been a world leader in physics research for more than a century. Our current faculty includes a Nobel Prize winner, several members of the National Academy of Sciences, and recipients of numerous prestigious awards. Our graduates hold leadership roles in industry, academia, and at national laboratories. We are also nationally recognized for our innovations in physics education.

As you enjoy the conference presentations in the main lecture hall, you will be interested to know that more than 50 Nobel Prize winners have made presentations in that very room. During the research laboratory tours, you will have an opportunity to see where world-leading research takes place, right here on our campus.

Throughout this weekend, we encourage you to reach out to make new friends and to learn about the tremendous opportunities available in the future if you pursue a career in physics. I think you will find that your hard work and love of science will open doors to places and challenges you never imagined. Please make yourself at home in our department and on our campus and enjoy the conference.

Dale Van Harlingen
Head and Professor, Physics Illinois



Schedule

Friday, January 18th

Time	Event	Location
	<i>Dinner on your own</i>	
5:00 - 6:30 p.m.	Check-In	Loomis Lobby
6:30 - 6:45 p.m.	Welcome: Jennifer Bernhard	Loomis 141
6:45 - 8:00 p.m.	Career Panel	Loomis 141
8:00 - 9:00 p.m.	Reception/Liquid Nitrogen Ice Cream	Loomis Lobby

Saturday, January 19th

Time	Event	Location
	<i>Breakfast at your hotel</i>	
7:30 - 8:00 a.m.	Check-In	Loomis Lobby
8:00 - 8:45 a.m.	Speaker: Dr. Laura Greene	Loomis 141
8:45 - 9:30 a.m.	Speaker: Dr. Joannah Metz	Loomis 141
9:30 - 10:00 a.m.	<i>Break</i>	
10:00 - 11:30 a.m.	Undergraduate Research Panel	Loomis 141
11:30 - 1:00 p.m.	Lunch/Poster Session	Loomis Lobby
1:00 - 2:30 p.m.	Keynote Speaker: Dr. Margaret Murnane	Loomis 141
2:30 - 3:15 p.m.	Speaker: Dr. Pamela Gay	Loomis 141
3:15 - 3:30 p.m.	<i>Break</i>	
3:30 - 5:30 p.m.	Lab Tours	
7:00 - 8:15 p.m.	Banquet Dinner: Dr. Young-Kee Kim	Levis Faculty Center

Sunday, January 20th

Time	Event	Location
	<i>Breakfast at your hotel</i>	
8:00 - 8:45 a.m.	Speaker: Dr. Monica Plisch	Loomis 141
8:45 - 9:30 a.m.	Speaker: Dr. Sam Zeller	Loomis 141
9:30 - 10:15 a.m.	<i>Group photo/break</i>	
10:15 - 11:00 a.m.	Speaker: Dr. Kawtar Hafidi	Loomis 141
11:00 - 12:00 a.m.	Graduate School Panel	Loomis 141
12:00 - 1:00 p.m.	Lunch	Loomis Lobby
1:00 - 1:45 p.m.	Speaker: Dr. Aida El-Khadra	Loomis 141
1:45 - 2:15 p.m.	Closing Remarks: Dr. Daniella Bortoletto	Loomis 141
2:15 - 2:45 p.m.	<i>Break</i>	
2:45 - 3:45 p.m.	Writing Workshop: Celia Elliott	Loomis 141



Speakers



Jennifer T. Bernhard

Jennifer Bernhard is a professor of Electrical and Computer Engineering as well as the Associate Dean for Research for the College of Engineering at Illinois. Her research addresses applications-oriented electromagnetic problems with an emphasis on theoretical analysis and experimental investigation. Her research group focuses on two areas: electromagnetics for wireless communication and reconfigurable active and passive antennas.

“Building your Mentoring Network—Starting Now!”

Welcome to Illinois! This event is a great opportunity for you to find out more about careers in physics. Perhaps even more importantly, though, this is an opportunity for you to meet other people with a variety of life stories and goals—other students with big ideas, successful professionals doing fascinating work, and inspirational faculty members who bring their research into the classroom every day. Meeting and speaking with all of these people will convince you that there is certainly a pathway, whether an existing one, or perhaps one that you will forge for yourself, for you to have the life and the career that you want— one rich with intellectual engagement, scientific impact, and personal fulfillment. So, while you're here, I encourage you to have conversations and make connections with the exceptional people you'll encounter. Some of them may become your mentors, and now is the perfect time to start building your mentoring network!



Laura H. Greene

Laura Greene is the Swanlund and Center for Advanced Study Professor of Physics at the Illinois and Associate Director for the Center for Emergent Superconductivity at Brookhaven National Laboratory. Her research is in strongly correlated electron systems focusing on electronic spectroscopies and the search for new families of superconductors. Greene is vice-chair of the Division of Materials Physics and is a founding member of the new Forum for Outreach and Engaging the Public of the American Physical Society (APS). Her service also includes the International Union for Pure and Applied Physics, Basic Energy Sciences Advisory Committee, and the Board on Physics and Astronomy of the National Academies, and she is the editor-

in-chief of Reports on Progress in Physics.

Greene is a member of the National Academy of Sciences, and a Fellow of the American Academy of Arts and Sciences, Institute of Physics (UK), the American Association for the Advancement of Science (AAAS), and APS. Her honors include a Guggenheim Fellowship, the E.O. Lawrence Award, and the Maria Goeppert-Mayer Award. She has co-authored almost 200 papers and presented over 300 invited lectures.



“Taming Serendipity in Lab and Life”

As we pass the centenary of the discovery of superconductivity, the design of new and more useful superconductors remains as enigmatic as ever. As high-density current carriers with little or no power loss, high-temperature superconductors offer unique solutions to fundamental grid challenges of the 21st century and hold great promise in addressing our global energy challenge in energy production, storage, and distribution. Historically, the discoveries of superconductors were predominately guided by serendipity. Some of us have worked to create a global network to find a way, together, to predictively design new superconductors. Global networks of communication among scientists in general, and among women and minorities in particular, also play a crucial role in our addressing 21st century physics.



Joannah Metz

Joannah Metz is a senior exploration geologist at Shell Exploration and Production Company in Houston, Texas. She holds undergraduate degrees in engineering physics, astronomy and geology from Illinois. During her undergraduate career, she completed internships at NASA Ames, the Kennedy Space Center, and the Harvard-Smithsonian Center for Astrophysics. She was a Gates Cambridge Scholar at the University of Cambridge where she earned a master of philosophy degree in polar studies. She earned master's and doctoral degrees from the California Institute of Technology in planetary science. She was a science team

member on the Mars Exploration Rovers and on the HiRISE camera team for the Mars Reconnaissance Orbiter.

“What’s Next? Career Opportunities in Related Fields and Industry”

A physics degree provides a basic grounding in science and analytic thinking that is broadly applicable both inside and outside academia. The fields of medicine, geophysics, planetary science, finance, and engineering are just a few examples of places where a physics background can form the foundation of a challenging, stimulating and rewarding career. Opportunities to make meaningful contributions to our society and economy exist within government, and in academic, non-profit and industrial sectors, and doing some thinking early on about after-college options can prove a great advantage. This talk will provide a high-level discussion of potential career paths and include some general advice on preparing for post-college opportunities ahead of time, as well as examples from my personal story. My Illinois physics degree was a starting point from which I went on to explore deep-sea vent communities and the surface of Mars, before recently starting an exciting career exploring for new energy resources in the oil and gas industry. It's an exciting time to be a young woman in physics!





Keynote: Margaret Murnane

Award-winning physicist Margaret Murnane began her journey to becoming a world-renowned expert on ultrafast lasers in the countryside of Midwest Ireland. Her father, an elementary school teacher, loved science and used to reward his young daughter with chocolates or a new science book from the library when she solved math puzzles. When she was 8, one of those books, with an illustration of Archimedes in the bathtub, kindled a lifelong desire to learn about the world by observing it. She reveled in her high-school physics class, even though “it was my worst subject.” Undeterred, she attended University College Cork (Ireland), earning bachelor’s and master’s degrees in physics. Her university courses were academically challenging, but fascinating. She graduated hooked on the idea of having a career in physics, even though it meant leaving Ireland to pursue a doctoral degree at the University of California, Berkeley. Murnane did her thesis work building an ultrashort-pulse laser in Roger Falcone’s laboratory. It took her a year to build the laser, another six months to refine and characterize it, and two years to demonstrate that it could generate fast x-ray pulses. Murnane graduated in 1989 and a year later received APS’s Simon Ramo Award for her thesis. During her graduate studies, Murnane met fellow student Henry Kapteyn, who became her husband in 1988 and a life-long collaborator. In 1990, the couple moved to Washington State University, where they set up a joint laboratory dedicated to the fast-moving and competitive field of ultrafast laser science.

“Why Diverse Teams Will Meet the Science and Engineering Challenges of the 21st Century”

Addressing many of the grand challenges in science and engineering requires research that spans multiple disciplines; of necessity, it also requires good teamwork. Designing the next generation of more efficient energy sources, data storage and nano electronics will be accomplished by the collaborative efforts of scientists and engineers who think outside the box. In many ways, there has never been a more exciting time to do research: with a diverse group of scientists and engineers, we can solve major global problems and invent new technologies that can drive the economy.



Pamela Gay

Pamela Gay is an assistant research professor at Southern Illinois University Edwardsville. She is an astronomer, writer, podcaster, and science communicator focused on using new media to engage people in science and technology. Through CosmoQuest.org, she works to engage people in both learning and doing science. She is involved in the leadership of many citizen science projects and communicates astronomy through media productions like Astronomy Cast. Dr. Gay holds a bachelor’s degree in astrophysics from Michigan State University and a doctoral degree in astronomy from the University of Texas.



“A Science Punctuated with Women”

Astronomy is a field that is allowed women to make a name for themselves even when women weren't yet allowed into the faculty of universities. From Caroline Herschel helping the map the stuff between the stars to Annie Jump Cannon defining Star stuff, women have always been there. In the modern era women have finally gained equal footing in professional astronomy, and while the numbers are still low their accomplishments are great. In this talk, the role of women in discovering our cosmos will be discussed.



Young-Kee Kim

Young-Kee Kim, an experimental particle physicist, is the Louis Block Professor in Physics at the University of Chicago. Since July 2006, she has served as deputy director of Fermilab. In this role, Kim leads development and execution of the strategic plan for the laboratory. Kim has served on numerous national and international advisory committees. She has devoted much of her research work to understanding the origin of mass for fundamental particles by studying the two most massive particles, the W boson and the top quark. Kim served as spokesperson of the CDF experiment at Fermilab's Tevatron, a premier particle physics experiment with more than 600 physicists from around the world. Kim was

born in South Korea and earned her bachelor's and master's degrees in physics from Korea University in 1984 and 1986 respectively, and her doctoral degree in physics from the University of Rochester in 1990. Her postdoctoral research was done at Lawrence Berkeley National Laboratory. She was an assistant, associate and full professor of physics at University of California, Berkeley, before she moved to the University of Chicago in 2003. Her honors include the University of Rochester's Distinguished Scholar Medal, the Ho-Am Prize, South Korea's Science and Education Service Medal, Korea University's Alumni Award and the Professional Opportunities Award for Women in Research and Education from the National Science Foundation (NSF). She is a Sloan Fellow, a Fellow of APS, and a Fellow of AAAS.

“Progress and Prospects”

The recent history of gender (in)equality in science can be compared to a glass that is half empty. I prefer to think of it as a glass that is half full. My optimism stems from seeing the steady improvements in the participation of women in physics. Only a few years ago, the record was dismal, but has been improving, albeit much too slowly. I am tremendously grateful to the pioneers who have gone before me to open the way. My career could not have commenced without them. I note that in my own institution small but meaningful changes have been made that make a career viable for women in physics. Of course there are problems for *all* under-represented groups. In this talk, I will emphasize the positives in pursuing physics as a women's career, while understanding problems and working together to improve the situation.





Monica Plisch

Monica Plisch is associate director of education and diversity for APS. She spends most of her time on the Physics Teacher Education Coalition (PhysTEC) project and is also engaged in efforts to promote women and minorities in physics. Plisch received her undergraduate degree in engineering physics from Illinois and completed her doctoral studies in physics, specializing in nanomagnetism, at Cornell University.

“The Physics Teacher Education Coalition (PhysTEC)”

Fewer than half of all high school physics classes have a teacher with a degree in physics. The need for qualified teachers is becoming more urgent with the dramatic increase in high school physics enrollments, which have more than doubled over the last 20 years. To address this need, APS in partnership with AAPT launched the PhysTEC project. Since 2000, the project has funded 27 sites to build model physics-teacher education programs, which have collectively more than doubled the number of graduates prepared to teach physics. In addition, PhysTEC has established a national coalition of more than 275 institutions and it offers conferences and workshops. The project recently published the first collection of peer-reviewed papers on physics-teacher education and sponsored the Task Force on Teacher Education in Physics. APS is collaborating with the American Chemical Society to initiate a similar project in chemistry-teacher education.



Sam Zeller

Dr. GERALYN (Sam) Zeller is a staff scientist at Fermi National Accelerator Laboratory in Batavia, Illinois. She received a doctoral degree in physics from Northwestern University in 2002 and earned a Mitsuyoshi Tanaka Dissertation award in Experimental Particle Physics for this work in 2003. She worked at Columbia University and Los Alamos National Laboratory prior to joining the staff at Fermilab in 2009. She was recently awarded a Department of Energy (DOE) Office of Science Early Career grant and is currently co-spokesperson for the MicroBooNE experiment at Fermilab.

“From Ballet to Particle Physics: My Path in Science”

Just like the trajectories of subatomic particles produced in high energy particle collisions, my path in science was not always a direct one. I will talk about the decisions that led me to my current position, some of the challenges along the way, and my current research in experimental particle physics. I will share some of the things I wish I had known when I was choosing a career in science.





Kawtar Hafidi

Kawtar Hafidi is an experimental nuclear physicist at Argonne National Laboratory. Her research interests focus on the study of the structure of nuclear matter in terms of its most fundamental constituents, quarks and gluons. Hafidi is also an adjunct professor at Benedictine University, teaching physics. She received her doctoral degree from the University of Paris-Sud (Paris XI) in France. She is currently conducting research projects at Jefferson Lab in Virginia and at FermiLab in Batavia, Illinois. Hafidi has led Argonne's Women in Science and Technology program and was chair of APS's Committee on the Status of Women in Physics. She has received numerous awards and has been recognized for her outstanding contributions in both science and leadership, including the DOE Outstanding Mentor Award in 2010 and the Association for Women in Science (Chicago chapter) Innovator Award in 2011. Most recently, she received the Pinnacle of Education Award in 2012 from the UChicago Argonne LLC for her efforts to inspire and encourage young women to consider scientific careers.

"The Quest for the Color Force"

The strong interaction, also called the nuclear force or the color force, is one of the four fundamental interactions of nature. It is the force that binds protons and neutrons (nucleons) to form the nucleus of an atom. On a smaller scale, less than the radius of the nucleon, it is also the force (carried by gluons) that holds quarks together to form nucleons and other hadron particles. The color force is described by quantum chromodynamics (QCD), the theory of strong interactions. Understanding QCD and its implication in the formation of particles is the main focus of my research. During my talk, I will give you a flavor about research in experimental nuclear physics and I will share with you some of my personal experiences as a woman physicist, a mentor and a mom.



Aida X. El-Khadra

Aida El-Khadra is a professor of physics at Illinois. She received a diplom (master's) in physics from the Freie Universität Berlin (Germany) and a doctoral degree from University of California, Los Angeles. She held postdoctoral positions at Brookhaven, Fermilab, and The Ohio State University before joining the faculty at Illinois in 1995. El-Khadra is a fellow of the APS. She received a DOE Outstanding Junior Investigator Award, a Sloan Foundation Fellowship, and research and teaching awards from Illinois. El-Khadra is a theoretical particle physicist who focuses on the application of lattice quantum chromodynamics (also called the strong interactions) to phenomenologically interesting processes in flavor physics, which are relevant to the experimental effort at the so-called intensity frontier.

“Physics On and Off the Lattice”

In the first part of my talk I will describe how and why lattice field theory together with large-scale numerical simulations, are used to make quantitative predictions of the effects of the strong interactions on certain weak processes. A very famous example of a weak process that is similar to what we study is nuclear beta decay. Large-scale numerical simulations require a collaborative effort that is generally bigger than other avenues of theoretical research, but much smaller than most research efforts in experimental particle physics. In addition to sharing some of the insights I have obtained along the way, I will discuss some of the challenges and opportunities associated with collaborations on this scale.



Daniella Bortoletto

Daniella Bortoletto is the E. M. Purcell Distinguished Professor of Physics at Purdue University. Her research focuses on experimental particle physics, for which she received a Sloan Fellowship (1994-1996), the NSF Career Advancement Award, (1994) and the NSF Career Award (1997-2002). She grew-up in Italy and received her bachelor's degree from the Università degli studi di Pavia. Afterward, she obtained her Doctoral degree in physics from Syracuse University. She was a postdoctoral scientist at Purdue before becoming an assistant professor in 1992.

Her principal research interests include the study of heavy quarks, first at CLEO (bottom quark) and then at CDF (bottom and top), and the search for new particles and the Higgs boson at CDF and now at CMS. She has worked on the development and fabrication of the CMS silicon pixel detector. She is currently a member of the NSF Mathematical & Physical Sciences Advisory Committee and the FermiLab Physics Advisory Committee. She previously served on the Executive Committee of the Division of Particles and Fields, the FermiLab User Executive Committee, the High Energy Physics Advisory Panel, the Particle Physics Project Prioritization Panel (P5), and on other review committees for both the DOE and NSF. She is a Fellow of APS (2004) and the current chair of CUWiP.

“The Higgs Boson and How Women Can Thrive in Big Collaborations”

I will take you on my journey searching for the Higgs boson and working in a huge team of scientists. How can you work in teams that include over 3,000 scientists and engineers? What are the challenges and the rewards? How networking, determination, and good communications skills play an essential role in making discovery and reaching for your dreams.





Celia Mathews Elliott

Celia Elliott is an academic at Physics Illinois. She has extensive experience in grant and proposal writing and funding of scientific research in academic institutions. She has taught principles of effective scientific and technical communications to advanced physics undergraduates and first-year graduate students since 2000. Prior to joining the Department of Physics, she worked as a technical editor for three international peer-reviewed physics journals, and she served as a part-time faculty member at Parkland College, teaching business management and business writing from 1981 to 1997.

Writing Workshop: “A Technical Writer’s Advice for Science Authors”

Being able to communicate effectively, in both oral and written form, is essential to your career success. Learning to write well will not only make you a more successful scientist, it will also make you a better scientist. Elliott will present two writing strategies—full-sentence outlining and organizing by paragraphs—that you can use to make your papers clear, concise, and compelling. Elliott will also share other tips to make writing easier, faster, and more effective.

Panelists

Career Panel

Nicola Astley received her bachelor's degree in physics from the University of Birmingham, England. After graduating, she spent a few years working for Marconi Underwater Systems before she changed paths to focus on the emerging high tech industry. Over the years she has worked for a variety of tech companies, from startups to corporations, web to mobile, including eBay. She currently works at Yahoo! where she provides program management and governance for the consumer product and insights group.

Felicia Martinez received her bachelor's degree in physics from Illinois last year and is now working in the financial industry in Chicago.

Lauren McNeill Van Wassenhove received her bachelor's degree in engineering physics from Illinois. She completed her physics degree with the goal of developing new diagnostic devices for cancer and other diseases. Since then, she has been working on her doctoral degree in Cell and Molecular Biology, where she is studying metabolic alterations in breast cancer progression. Lauren's career goal is to work in a pharmaceutical company to develop new drugs for disease treatment.

Arlene Modeste Knowles is the Career & Diversity Programs administrator for the APS Minority Bridge Program.

Tierney Smith received her bachelor's degree in physics from Illinois. She holds a master's degree in education and now teaches high school physics and physical science in the Chicago suburbs.

Undergraduate Research Panel

Kathy McCloud is a Research Experience for Undergraduates (REU) program director for the National Science Foundation.

Toni Pitts is the REU coordinator for the Department of Physics, University of Illinois at Urbana-Champaign.

Lisa Reed is the program coordinator for Faculty and Student Programs at Argonne National Laboratory in the area of Laboratory-Graduate Research Appointments.

Cacey Stevens is a graduate student at the Department of Physics at the University of Chicago working with Professor Sidney Nagel, a soft condensed matter experimentalist. Her research focuses on developing a splashing threshold of low-viscosity liquid drop impact on smooth surfaces. She serves as graduate student coordinator of the Physics and MRSEC REU at the University of Chicago and is involved in education and outreach activities in the South Side Chicago community.

Elana Urbach is a student from the College of William and Mary who attended the Physics Illinois REU Program, Summer 2012.

Graduate School Panel

Hannah DeBurg graduated from the University of Arkansas in 2003 with a bachelor's degree in physics and mathematics, with an additional major in Spanish. She is now a graduate student at Illinois where she does biophysics research in Professor Paul Selvin's lab.

Susan Larson is an assistant dean in the College of Engineering at Illinois, where she directs the Women in Engineering Program. She has undergraduate degrees in physics and in German from Washington University in St. Louis. She pursued graduate studies in environmental engineering science at the California Institute of Technology for her master's and doctoral degrees. Before moving to her dean's position, she earned tenure in the Department of Civil and Environmental Engineering, with teaching and research in air quality. In her current role, she directs the Women in Engineering Program, which offers a high-school engineering summer camp, an orientation program for new women freshmen in engineering, and an undergraduate research program. She has directed the Engineering 100 program, advises undergraduates, and assists in college efforts to recruit new students to engineering.

Naomi Makins is a professor of physics at Illinois, specializing in nuclear physics. She is the analysis coordinator for the HERMES experiment at the Deutsches Elektronen-Synchrotron in Hamburg, Germany.

Emily Sprague earned her dual bachelor's degree in physics and piano performance at Illinois and is now an applied physics graduate student at Northwestern University.

Simona Rolli is a program manager at the DOE, in the Office of Science, Office of High Energy Physics. She is overseeing federally funded programs in theoretical particle physics and experimental particle physics, carried out at national labs and public and private universities. She moved to the DOE in March 2011, after a fifteen-year career in particle physics. She obtained her Doctoral degree in theoretical particle physics from the University of Pavia, Italy, in 1996 and spent most of her career at Fermilab, working on the Tevatron Collider CDF experiment as a research scientist on behalf of Tufts University. She was also part of the ATLAS Collaboration at the CERN Large Hadron Collider

Poster Presenters

1. Teckla Akinyi Single Molecule Study on the Transfer of SSB between Single Stranded DNA
2. Elizabeth Annoni Using MATLAB to Simulate and Analyze Optical Systems
3. Remmi Baker Confirming the Arms of the Milky Way Galaxy
4. Kate Barclay Weather Conditions and Photovoltaic Cells
5. Marie Blatnik Analysis and Selection of Materials for the COMPASS DC56 Drift Chamber Prototypes
6. Alexandra Brancale Adjusting the All-Sky Camera
7. Marissa Brown Theoretical Study of Two-Proton Emission
8. Celeste Carruth A Monte Carlo Study of a Level II Trigger Cut for the KOTO Experiment
9. Mindy Cartolano Exploring the Variability of Ion Heating at Reconnection Events in MST
10. Andrea Clark/ Logan Jacobson The Franz- Weidemann Law
11. Anna Czerepak Measuring the Nanomechanical Properties of Graphene: Adhesion Energy
12. Katherine Duncan-Chamberlin High-Voltage Testing for a High-Current Photocathode Electron Gun
13. Emily Ehlerding Water Splitting in Photosystem II
14. Mackenzie Endres Simulation of the SAVI, Strut Adjusted Volumetric Implant, Brachytherapy Treatment
15. Ashley Ernst The Effect of Select Non-Structural Parameters Upon the Intensity of Calculated LEED I(E) Curves
16. Ayana Ghosh Radiation from Blackhole May Hint at the Existence of Extra Dimensions
17. Shannon Glavin An Empirical Galaxy Group Finder
18. Jenna Graham Imaging the Genetic Code of a Virus
19. Natalie Harrison Pattern Recognition and Noise Studies for the MICE Detector
20. Kathryn Hasz Polarization Analyzed Small Angle Neutron Scattering of Magnetic Nanoparticles
21. Ashley Hicks Designing and Building Transducers for Use in a Molecular Acoustics Experiment
22. Katherine Jinkins Spray Deposition and Characterization of Conductive Few-Layer Graphene Films
23. Hollee Johnson Pinpointing the Period of EY UMa



24. Teresa Lackey Hand-Scan Results for NuMI Events Recorded in the NOvA Near Detector
25. Katrina Magno Study of Cataclysmic Variable B7 in NGC 6791: From Ground and from Space
26. Meredith McLinn Viewing Density Deviation in Hot Stars
27. Kelsey Meinerz A Simplified Model for Flagellar Motion
28. Rachael Merritt Comparison of Field Galaxies and Supernova Host Galaxies in Stripe 82
29. Sarah Millholland Modeling and Fitting Exoplanet Transit Light Curves
30. Blythe Moreland The Galaxy Cluster as Evolving Network: Investigating Centering, Substructure, and relaxedness
31. Jocienne Nelson Gas Separation and Storage in Metal Organic Frameworks
32. Thomasina O'Conner Design and Construction of a Xenon Gas-handling System for Studying Backgrounds in Neutrino-less Double Beta Decay Experiments
33. Emma Patmore Extra Dimensions and T-duality in String Theory
34. Caitlin Ploch Electromagnetic Dispersion in Periodic Structures
35. Natasha Sachdeva Measuring Relaxation of Polarized ^3He in Superfluid ^4He
36. Susan Schmitz New Radio Observations of Molecular Clouds in the Galactic Center
37. Mikayla Seeber Characterization of a NE-110 Plastic Scintillator as a Cosmic Ray Veto Detector
38. Stanislava Sevova Analysis of W-gamma-gamma Event Production at CMS
39. Blaire Sorenson Structural Characterization of Red Light Photoreceptors Using Atomic Force Microscopy
40. Kiley Spirito Differential PIXE Analysis of Layered Automobile Paint
41. Michelle Storms Search for Long-Lived, Weakly-Interacting Particle Decays to Opposite-Sign Di-Muon Pairs at MINERvA
42. Savannah Thais Linear Track Fitting in MICE
43. Elana Urbach Probing the Unraveling Mechanism of ssDNA from Single Wall Carbon Nanotubes with Dual Optical Traps
44. Alexis Wadowski Rapid Characterizations of Silicon Nano Wires at Room Temperature
45. Kim Walker Eastern Seaboard Electric Grid Fragility Maps Supporting Persistent Availability





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