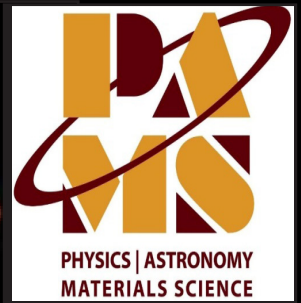


M o m e n t u M



Newsletter
Fall 2017



MSU's Solar Eclipse Day started off the 2017 – 2018 academic year with a celestial bang: 08/21/17

Over 13,000 participants either in Plaster Stadium or surrounding campus areas observed the eclipse. The audience included a number of K-12 school groups, MSU students, staff and faculty, other colleges around the area and the general public. Everything was free to attend including the parking at Hammons Baseball Field where shuttles were available to and from Plaster Field. MSU hosted the event as part of their

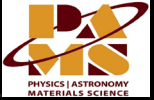
Public Affairs Mission, so a very big Thank You to the administration for providing the support. Each person coming through the gates received a pair of Solar Eclipse glasses certified for safely viewing the eclipse and individually hand-inspected by Hannah Whaley (my Intern for the summer) to insure they were in good shape. While not in the path of totality, Springfield experience 96% coverage of the Sun. It did get eerily darker and cooler in the middle of the day. Watching the eclipse surrounded by that many people, all there to experience the excitement of a Solar Eclipse, was a great feeling and one that will never completely go away.

Planning for the day began in the spring semester however, the pace really picked up in June. Having the eclipse occur the same day as the first day of classes made for some interesting challenges. Not only did we want those attending to see the Solar Eclipse, we also wanted them to have a number of activities to do in the name of science while they were here, no matter the age or level of education. As with any event, a huge amount of thanks needs to be given to the volunteers that helped make the event possible by contributing their expertise, time and effort in making it a reality. I can't thank Stephanie Blake (a graduate of this department and currently serving on the Department's Advisory Board) enough for all she did to help make the day a truly great event. She deserves numerous gold stars for everything she did!

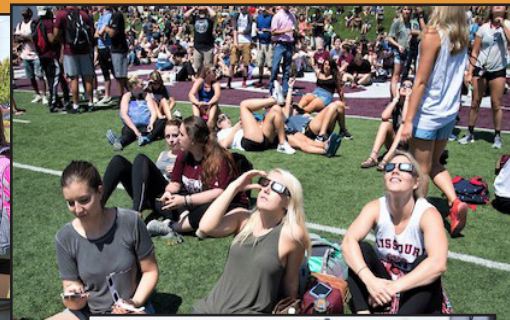
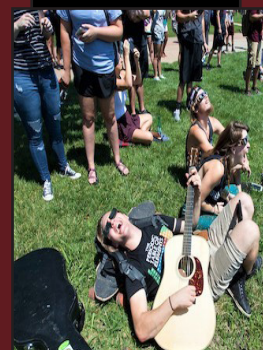
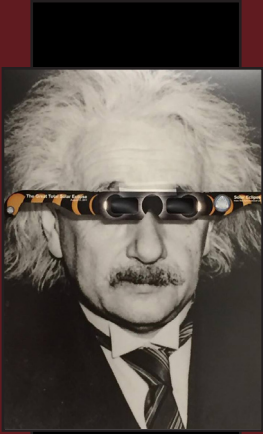
Gates opened at 10:00 am when everything kicked off. In total there were 16 events continually going on during the day. These included a Solar System Scale Tour, Balloon



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Rocket Races, Fabric of Space activities, astronomy themed trivia contest, etc. including having your picture taken with Yoda and C3-PO, Guardians of the Galaxy and/or a Space-themed photo-op cutout board. In addition, the Jumbo Tron had five full hours of programming including videos of eclipse-related information, interviews describing CNAS departments, safety videos, live interviews with the participants on the field involved with the activities and live remote NASA feed from across the US. Dale Moore served as the MC for the day and did a great job! President Smart and Dean Jahnke kicked off the Solar Eclipse at 11:44 am when the Moon initially started across the surface of the Sun. A Zombie Dance with some dancers in full Zombie costuming continued the celebration at noon. How could you not enjoy that? Everybody got into it and were dancing with the Zombies. I was up at the top of the bleachers so I could see the entire field. They (and the audience) put on a great show! Excitement continued to build as the maximum coverage approached in Springfield. The Jumbo Tron's feed joined the NASA Eclipse Channel's live feed coming out of Jefferson City, which did experience totality. Combining Springfield's view with the Jefferson City view of totality gave quite a show! And then it was over. The crowd left and we cleared off the stadium's field. But memories of that day linger - watching parents and their children having fun together doing the activities, talking to my former students as they came to see the eclipse, the enjoyment everyone felt in doing science as I walked around and finally, watching all the faces turned upward toward the sky during the eclipse with wonder and excitement on their faces – those will stay with me. And then I went home and slept for 14 hours.

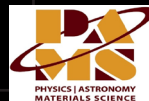


If you missed this eclipse, you have a chance in 2024 to see another Total Solar Eclipse. This one will come up from the south, travel north through Missouri and curve toward the east on its path through the United States. It will be something you don't want to miss!

**From the desk of Becky Baker, Senior Instructor
Physics, Astronomy and Material Science**



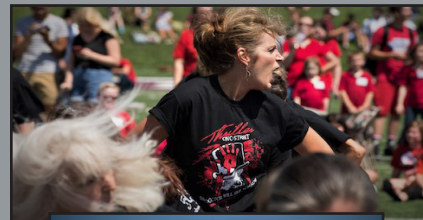
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Darkness, and Dancers, and Zombies, Oh My!

On Monday, August 21st, the C-Street Thriller Dancers, also known as the Zombie Corp, lead by "Dance With Me" instructors Ann and Andy Walls, performed at the Missouri State University Solar Eclipse Event held at Plaster Stadium at noon, just an hour before the apex of the darkness fell. Approximately 40 adult dancers from around Southwest Missouri donated their time to come perform on the turf as apocalyptic risen dead to Michael Jackson's ten minute long hit song, "Thriller", many of them squeezing it in on their lunch breaks. Organized by Stephanie Blake, PAMS advisory board member and MSU alum, the performance was certainly a hit as 10,000 college students, k-12 students and community members watched the zombies come to life, gyrate their twitchy bodies, and then die again in the center of the field. The Thriller Dancers are best known for their Halloween performances given each year on Commercial Street in Springfield, Missouri. Ann and Andy give lessons throughout the month of October to teach new Zombie Corp members the original Michael Jackson choreography at their dance studio called The Savoy, which is also found on Commercial Street.

Anyone interested in joining should call Ann and Andy at The Savoy. (417) 865-2255



Intellectual Contributions 2015 - 2017

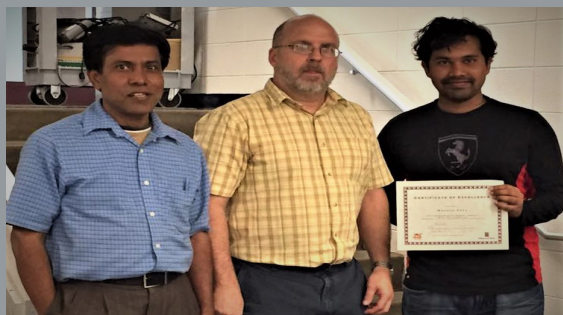
Department of Physics, Astronomy, and Materials Science

Biswas, Mahua (Assistant Professor)
Ghosh, Kartik C. (Full Professor)
Mayanovic, Robert A. (Distinguished Professor)
Mitra, Saibal (Full Professor)
Reed, Michael D. (Full Professor)
Sakidja, Ridwan (Associate Professor)
Stepanova, Maria (Associate Professor)

Please follow our link to see the many outstanding intellectual contributions made by our faculty in the last two years.

<https://physics.missouristate.edu/nwsltr2017refs.htm>

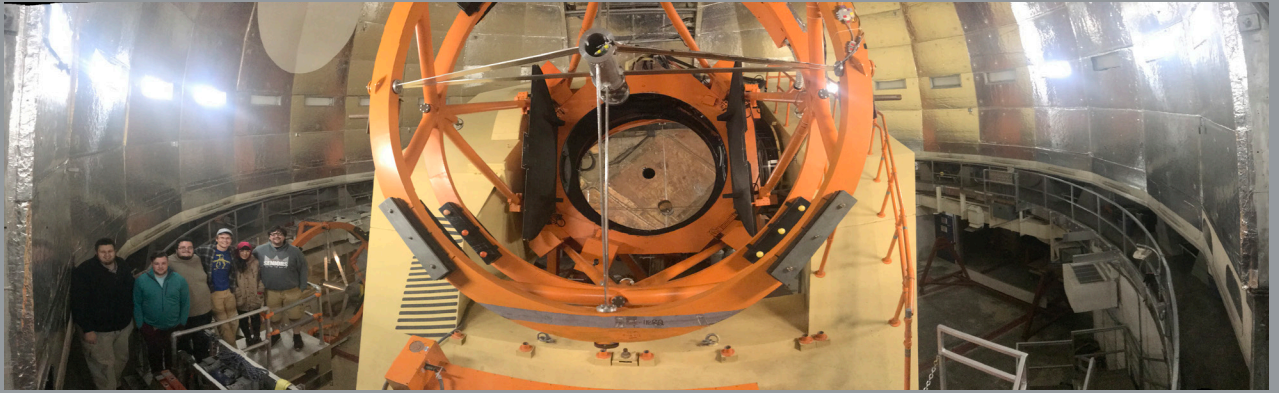
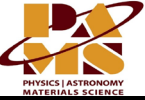
Student Opportunity for Excellence



Many of students have been given the opportunity to travel, attend conferences, present research, and to show their excellence. Here are a few examples.

Professor Kartik Ghosh, graduate research advisor, with David Cornelison and MS student Mahmud Reaz, honored for his excellence in research.

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Pictured above: MSU students Andrew Cancino, Frank Giddens, America Nishimoto and Joe Huber, along with former MSU masters student Bryson Cale, and Dr. Peter Plavchan at the NASA Infrared Telescope Facility (IRTF) in Hawaii. The primary mirror is 3 meters across (10 feet). It is at an elevation of 13,800 feet above sea level, where there is only 60% of the oxygen in the air compared to sea level. They were there to perfect the techniques to search for exoplanets using the Doppler method at near-infrared wavelengths with the iSHELL spectrograph.



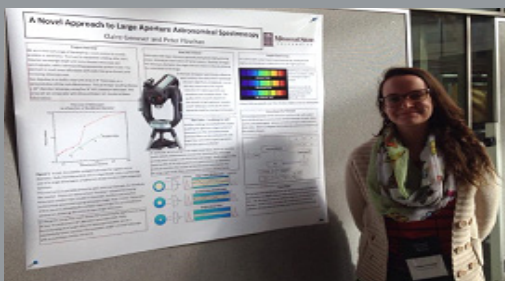
Pictured right: Professor David Cornelison, graduate research advisor, with MS student Michal Bulak, honored for his excellence in teaching.

Pictured Left: Professor Mike Reed, graduate research advisor, with David Cornelison and senior student Shannon Dulz, honored for her excellence in research.

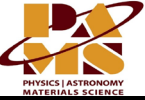


Pictured Below: Shannon Dulz, Hayley Osman, Julie Barnum, Laura Ketzer, and Claire Geneser. At the APS Conference at Purdue.

"A Novel Approach to Large Aperture Astronomical Spectroscopy" was presented by Claire Geneser and Dr. Peter Plavchan.



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Society of Physics Students Trips

One of the aims of the Society of Physics Students (SPS) club is to get the students out into the “real” world of physics. During the last couple of years, we have taken two big trips, one in November 2015 to Boulder Colorado and one just recently to the Chicago area, home of Argonne and Fermi National Labs.

Boulder, CO

In 2015, the Society of Physics Students at Missouri State University traveled to Boulder, CO over Thanksgiving Break to tour some of the physics laboratories in the surrounding area and to give our members a better idea of the rigors of graduate school in physics and related fields. During our stay, we toured the University of Colorado campus, including their JILA (formerly Joint Institute for Laboratory Astrophysics) facility which is connected with their atomic and molecular physics program, we climbed Gamow tower overlooking CU’s campus, were granted access into several of NIST-Boulder’s (the National Institute of Standards and Technology) laboratories including a Nobel Prize winning quantum computing lab, and we also trekked to NCAR’s (National Center for Atmospheric Research) facility on the slopes of the foothills overlooking Boulder.



Statue of Ralpie the Buffalo on CU’s campus in Boulder, CO.



All of us standing in front of the Denver Museum of Nature and Science after exploring their exhibits. A good way to spend our Sunday afternoon.

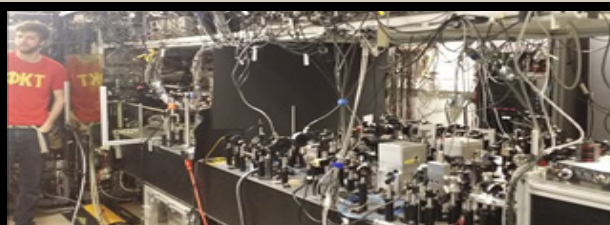
Our first full day in Boulder was a Sunday, so we decided to travel into Denver for the afternoon and walk through the Denver Museum of Nature and Science. We spent most of the afternoon exploring their numerous exhibits.

Our first tour on Monday was at JILA, where we spoke with a graduate student from each of the three labs that we visited. Each lab was associated with a different research group headed by a professor or group of professors. We were able to tour one of the labs from the

Cornell (Nobel Prize in Physics 2001) group—the lab we visited was working on strongly interacting Bose-Einstein Condensates (BEC’s)—the Jin group, also studying properties of BEC’s by laser cooling a gas of rubidium atoms to ultra-cold temperatures in a magneto-optical trap, and the Kapteyne-Murnane group, working on nanoimaging using a hand built tabletop X-Ray Coherent Diffraction Imager measuring at the Nano-Femto-Limits.



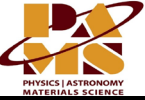
Our group of MSU students waiting outside JILA’s building on CU’s campus before our tour began.



Optics in a lab at JILA where they perform laser cooling and magneto-optical trapping to study the properties of ultra-cold rubidium ions as a Bose-Einstein Condensate. The graduate student in the picture has just begun his 6-year stretch as a Ph.D. candidate.

Tuesday morning was spent at NCAR, at Green Mountain. While there, we were given a full tour of their facilities and we were shown some of their notable computational research, including a presentation about simulations created by researchers at NCAR of wind currents, heat diffusion in Earth’s atmosphere, hurricanes, and also coronal mass ejections from our Sun. After the presentation we went outside

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The NCAR facility, and the view of Green Mountain from the backdoor.



to enjoy the view and explore some of the hiking trails that begin at the building's back door.

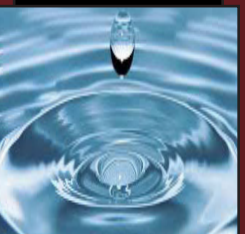
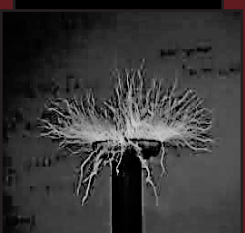
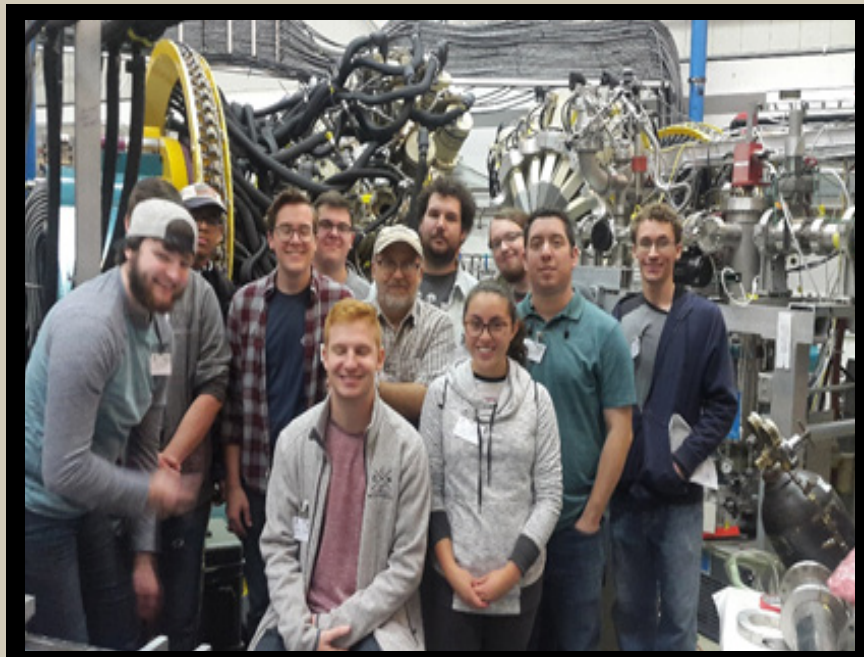
On Tuesday we toured the National Institute of Standards and Technology (NIST)-Boulder, and visited several labs, including their Nobel Prize winning facility. NIST is responsible for keeping track of many standards in the US, including certification of machinery, standardizing measurements, and keeping the time. NIST is famously known for their cesium atomic clock, however we were able to see a newer atomic clock, which uses strontium ions and a laser source tuned to a frequency accurate to 10-15 Hz of the resonant frequency of the strontium target. This allows them to keep the time accurate to 10-18 s, or in other words, if the clock had started at the time of the big bang, the time it showed would still be accurate to within 1 second today. Researchers at NIST are also able to detect general relativistic effects by changing the height of this clock by less than 1 cm.

Chicago

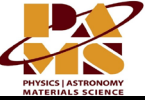
Fall break 2017, we traveled to Chicago, Illinois. We visited Argonne National lab. Our tour guide was Dave Hopper, a biologist at the lab who also knew a great deal about many branches at the facility. We first went to the Advanced Light Source, which is a synchrotron, producing tunable x-rays for materials and biological experiments. There, we learned about the general capabilities of the beam, related to the x-rays it produces, and talked to a group who were investigating the characteristics of unique metal alloys.

From there we drove to the Argonne Tandem Linac Accelerator System (ATLAS). This device can be used to produce high Z atoms, and scientists there are searching for new areas of nuclear stability. The main detector, named Gammasphere, was not only amazing, but famous after being used as a backdrop in the 2003 Hulk movie.

On Friday morning we went to Fermilab, in nearby Batavia. We first looked through Wilson, designed by and named after the first director of the lab. We saw the control room, linked to the LHC at CERN and talked to a physicist participating in the new Neutrino experiments on which Fermilab now concentrates.



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We were able to go into the Tevatron. The highlight was the main detector at D0, which was as large as some buildings. It was used in the discovery of the Top quark and the science and engineering used in its construction was mindboggling.

Then we headed into the tunnel of the Tevatron ring and looked at the combination of vacuum pumps, magnets and other devices need to keep two tiny beams of protons and antiprotons speeding in opposite directions for miles.



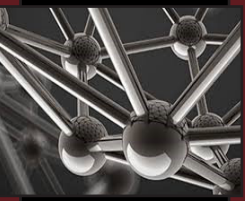
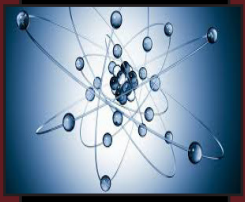
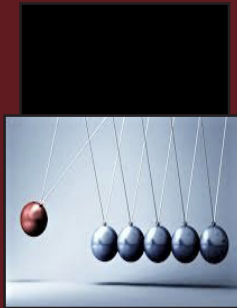
Matlab Scientific Programming Class

Background

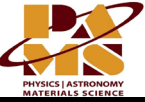
Steve Nunn is a member of the PAMS advisory board and an MSU alum. Steve was working as an Electrical Engineer at Space and Naval Warfare Systems Center Pacific, the Navy's largest Research and Development laboratory. While there, Steve taught the Matlab scientific programming language to interns at SSC for several years and now offers his experience in teaching scientific programming to High School students in the Springfield area.

The goals of the Matlab program are:

1. Introduce students to the Matlab Scientific Programming language incorporating concepts from Speech processing / Voice recognition.
2. Increase student awareness of the huge potential for exciting jobs in Science, Technology, Engineering, and Math (STEM) careers. Explain how majoring in the areas of Physics and Engineering in college open up the many opportunities in these careers.



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Steve originally discussed his idea of teaching High School students with Dave Cornelison, the head of the MSU Physics, Astronomy, and Material Science department. Dr. Cornelison was very supportive of the program and immediately began working to find interested students. He contacted Barbie Kolb, an instructor in Technology Solutions at the Greater Ozarks Centers for Advanced Professional studies (GOCAPS). Barbie presented the idea to her class and she immediately had nine people sign up. There is also one home-schooled student that participates in the class.

The program has been a great success and we anticipate offering it again with the hope of expanding the number of students.



Dr. Kartik Ghosh, Professor Physics, Astronomy and Material Science

During the last several summers, Dr. Ghosh has had the opportunity to take one graduate student each summer to Air Force Research Laboratory (AFRL) to get research experience in materials science applied to Air Force.

Last summer, 2016, Antony Pelton was awarded 2016 Air Force Summer Graduate Student Fellowship at AFRL. We have recently learned that Antony has taken a job at the UES Inc., a Research Contractor of AFRL. Antony will work at AFRL as an employee of the UES Inc.

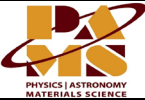
This summer, Dr. Ghosh and Zach Leuty had the honor of accepting the summer faculty fellow at the Materials and Manufacturing Directorate on the Wright-Patterson Air Force Base in Dayton, Ohio. The purpose of this program is to invite professors to visit an industry leading facility and advance their own research using the resources available on the Air Force Base. This encourages the student and professor to collaborate and work with many experts in the field and learn endless information about how the Air Force applies materials science to solve problems in real world applications. Dr. Ghosh and Zach worked specifically with the Nano electronics division as their research project of studying multi-ferroic thin films was related with this topic. Zach said that his most memorable part of the summer was learning about and using a transmission electron microscope. This type of microscope is the most powerful in the world and after many days of sample preparation and practicing, Zach was able to capture images of atoms for their research.

A multiferroic material exhibits both ferromagnetic and ferroelectric properties and has several applications, such as multi-storage devices and radio frequency amplifiers, an interest of the Department of Defense. Zach had the opportunity to interact with many well-known research scientists of AFRL as well as AFRL research contractors such as UES Inc, Universal Technology Corporation, and University of Dayton Research Institute. He should receive easy access to work with many state-of-the-art research facilities such as High Resolution Transmission Electron Microscopy, Scanning Electron Microscopy, X-ray Diffraction, Focused Ion Beam for Nanofabrication, and Ferromagnetic Resonance Spectroscopy. This experience will help Zach find a good job in tech industries or government research laboratories.



Zach Leuty was awarded 2017 Air Force
Summer Graduate Student Fellowship

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Graduates 2016 - 2017

Spring 2016

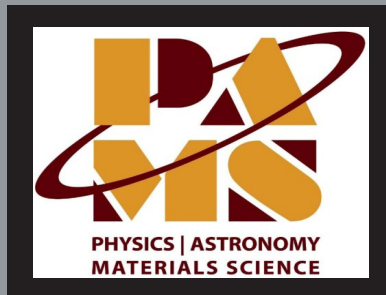
Sean Anderson	MS
Michal Bulak	BS
Dayton Kizzire	MS
Claire Geneser	BS
Gavin Hester	BS
Mason Marshall	BS
Kent Mastroian	BS
Austin Shearin	MS
Daniel Soden	MS
Timothy Stillings	BS

Summer 2016

Anthony Ascone	MS
Sean Anderson	MS
Ying Deng	MS
Mohammad Hossain	MS
Daniel Jones	BS
James Thomas	BS

Fall 2016

Ashley Delong	BS
Ying Deng	MS
Calbi Gunder	BS
Justin Hollis	BS
Krishna Puppala	MS



Spring 2017

Neva Agarwala	MS
Michal Bulak	MS
Christopher Case	BS
Garrett Cornman	BS
Shannon Dulz	BS
Heath Gemar	MS
Trey Grimes	BS
Ryan Hall	BS

Laura Ketzer	BS
Tyler Noyes	BS
Nicholas Ogden	BS
Anthony Pelton	MS
Casey Ratliff	BS
Paul Simanjuntak	MS
Meghan Sims	BS
Henry Stratmann	BS

Summer 2017

Thomas Callaway	BS
Zachary Leuty	BS
Shah Alam Limon	MS
Md Abdul Mamun	MS
Tamzid Minhaj	MS
Bithi Paul	MS
David Phillippe	BS
Mahmud Reaz	MS

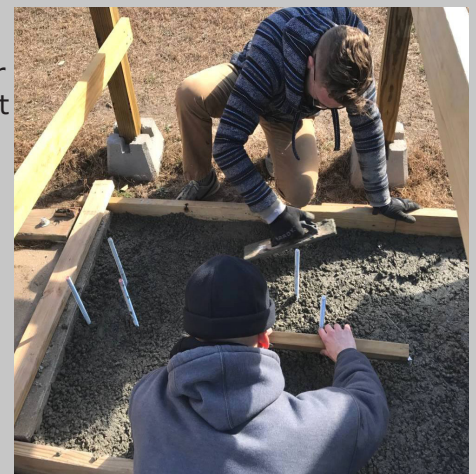


Baker Observatory

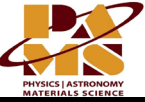
On Friday, Feb. 24, 2017 students assisted with pouring concrete at Baker Observatory. The construction work is for a new telescope pier foundation for MICRONERVA, a project of Dr. Peter Plavchan's. The project consists of individual



"robotic" telescopes controlled by a single computer, and is a smaller version of MINERVA, the larger, original version of the "parent" observatory concept.



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Faculty Excellence Awards

Atwood Research and Teaching Award

The Atwood Research and Teaching Award was endowed by Dr. Jerry Atwood, a 1964 graduate of Missouri State University and now an internationally known chemist. He started his career at University of Alabama in 1967 but has been the department head at University of Missouri-Columbia since 1994. In addition he was appointed a Curators Professor starting in 1999. The award winner receives a certificate and \$1500 to be spent over the next year on students, research supplies, summer salary or travel.

The 2017 recipient of the Atwood Research and Teaching Award is **Dr. Bob Mayanovic**, professor in the Department of Physics, Astronomy and Materials Science. **Dr. Mayanovic's** research group studies synchrotron x-ray studies of condensed matter, materials in supercritical aqueous fluids, high pressure-temperature studies and mineral physics. His group has seven peer-reviewed publications in 2016 and three published in 2017. Bob and his students made 23 presentations at conferences over the last five years. In recent years, Bob has received external funding from the National Science Foundation and Department of Energy. Today he is working on a project with a local company. Bob has supervised seven undergraduate research projects over the past five years and as many graduate thesis projects. He currently has six graduate students working on their thesis research projects. Bob's passion for teaching and mentoring is strong and enduring. He teaches everything from PHY203 and 204 – Foundations of physics to modern physics, experiments in modern physics and introduction to materials science. His teaching evaluations are always outstanding. During senior exit interviews with the department head, many students have noted Dr. Mayanovic's positive influence on their lives.

Dr. Bob Mayanovic was also named **Distinguished Professor** in the Department of Physics, Astronomy and Material Science.

CNAS Faculty Excellence in Research Award

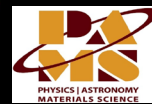
Peter Plavchan, assistant professor in the Department of Physics, Astronomy and Materials Science, studies the radial velocities of exoplanets. He has received funding from NASA, NASA-Missouri Space Grant Consortium and Jet Propulsion Laboratory. In 2016 he authored eight peer-reviewed publications and gave nine invited research seminar presentations in Missouri and California. He has involved many students in his work – high school students, undergraduate students and now graduate students. Peter is passionate about his research and transfers that passion to the students in his research group. Peter recently received funding from NASA to investigate the scientific feasibility of a space mission to search for exoplanets (planets like ours) orbiting nearby stars.

Comings & Goings

Physics, Astronomy and Material Science is very happy to welcome our newest additions to the Department, Dr. Evan Frodermann and Tiglet Bisara. We also said goodbye to two of our faculty. Dr. Peter Plavchan and Dr. Mahua Biswas.

Dr. Peter Plavchan is a former assistant professor in the department. He recently left Missouri State for a faculty position at George Mason University in Virginia to be closer to family. He is a 2006 graduate of the University of California, Los Angeles, with both an MS degree and PhD in Physics. He earned his bachelors degree in 2001 with honor from Caltech. Prior to coming to Missouri State in 2014, he was a research scientist at the NASA Exoplanet Science Institute at Caltech. Dr Plavchan is an expert in exoplanet astronomy. During his time at Missouri State, he published a number of papers, and lead a successful proposal as Principal Investigator to study a possible future "probe class" NASA mission called EarthFinder. He involved a lot of students in his research, including taking four lucky Missouri State students in October of 2017 to the

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NASA Infrared Telescope Facility 13,800 feet above sea level on the dormant volcano Mauna Kea on the Big Island of Hawaii (pictured below).



Dr. Plavchan left his mark at Baker Observatory in his three years here. He led a group of student to build a wooden fence (pictured below with Professor Mike Reed) between the observatory and the parking lot to cut down on light pollution on public nights, and designed and built with students and Brian Grindstaff, a motorized roll-off roof enclosure for permanent set up of some of our edu

cational telescopes (pictured left). This will save students the time of setting up and taking down the telescopes in our astronomy lab courses leaving for more time to gaze at the stars.



Dr. Mahua Biswas traveled to Ireland for her Ph.D after completing her undergraduate degree in Electronics and Communication Engineering from West Bengal University of Technology, India. She completed her Ph.D from the Physics department of Dublin City University, Ireland in 2010. Her thesis work was on 'Growth and Characterization of ZnO Nanostructures: Excitonic Properties and Morphology'. After her Ph.D she came to the US and worked at New Jersey Institute of Technology, NJ (2011-2012) and Argonne National Laboratory, IL (2013-2015) as a post-doctoral researcher. She worked on various research projects such as nanopatterning of inorganic oxides and polymers, solar cells fabrication.

In 2015 she joined Missouri State University (MSU) as an Assistant Professor of Physics and Material Science. At MSU, she was involved in undergraduate teaching and material science research. She worked with four Undergraduate and three Masters students and her main research topics were "Block copolymer assisted nanopatterning of inorganic materials" and "Perovskite solar cells fabrication". In 2017, she joined Millikin University, IL as Assistant Professor of Physics and continuing her teaching and research there.

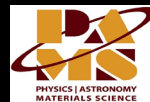
Evan Frodermann joined us for the 2016-2017 academic year. Evan Frodermann is a graduate of The Ohio State University (OSU) with a Masters in 2005 and Ph.D. in 2008. His research area was theoretical nuclear physics with a focus on phenomenological models of heavy-ion collisions. After graduate school, Dr. Frodermann became a post-doctoral research assistant in nuclear physics at the University of Minnesota (UMN). Throughout his academic career, Evan has fostered an interest in physics education which was further cultivated during his time as a teaching specialist and lecturer at UMN. He seriously pursued those interests as post-doctoral research associate in the Physics Education Research and Development group at the University of Minnesota.

Here at Missouri State, Evan is teaching the introductory algebra-based physics courses and his research interests are broadly focused on exploring pedagogy and student learning through solving problems. He's especially interested on how students develop problem solving skills in introductory physics courses using online resources (see <https://physicscoaches.missouristate.edu>). He also pursues research and development of appropriate curricula for life-science students in introductory physics.

Tiglet Besara received a Master's in Physics, or officially a Philosophie Magister degree, from Stockholm University, Sweden, with thesis work in theoretical high-energy physics. He started his doctoral studies at the Department of Physics at Florida State University in Tallahassee, but joined an interdisciplinary program between Physics and Chemistry that resulted in a PhD in Chemical Physics. His doctoral research was performed at the condensed matter physics NMR group at the National High Magnetic Field Laboratory, studying metal-organic frameworks, multiferroics, and other materials utilizing NMR.

After graduation, he remained at the National High Magnetic Field Laboratory as a postdoc in a materials science group, focusing on single crystal synthesis of metal oxides and intermetallics using mainly flux methods, along with structural characterization via single crystal and powder x-ray diffraction and crystallography.

M o m e n t u M



Scholarship Winners

Banks Family Scholarship:

John W. Northrip Memorial Scholarship:

Kenneth A. Soxman Memorial Scholarship:

Pre-engineering / Engineering Physics Scholarship:

Thomas Cave Endowed Astronomy Scholarship:

Thurman Family Scholarship:

Physics and Astronomy Department and Friends Scholarship :

Kelly Alvarado, Evan McMahon, Shea Rook

Physics, Astronomy and Material Science Dept. Scholarship Fund:

Cooper Barnhill, Holly Emerson, Eli Raithel, Patrick Toplikar, Colin Trantham

Alyssa Slayton, William Tihen

Christopher Klenke

Cynthia Morales-Bejarano

Ethan McQuillan

Christopher Klenke

Christopher Klenke

PAMS Alumni & Friends

Please take a few minutes to send us an email at: physics@missouristate.edu. Include your current contact information, graduation year and Missouri State degree. Let us know where you are working now, job title or other career or personal accomplishments so we may include you in the next issue.

Stay current with the MSU Alumni Association at <http://alumni.missouristate.edu>.

Update your contact information online and learn about upcoming alumni events, such as MarooNation. Staying Connected.

State universities could not operate without generous contributions from alumni and friends. Your support enables us to provide scholarships, teaching equipment, and more. We hope you will consider making a contribution to the PAMS department or to one of the scholarships; your gift is tax deductible.

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Thank you!

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You can reach us by e-mail at Physics@MissouriState.edu

If you wish to speak to one of our staff, please call 417-836-5131

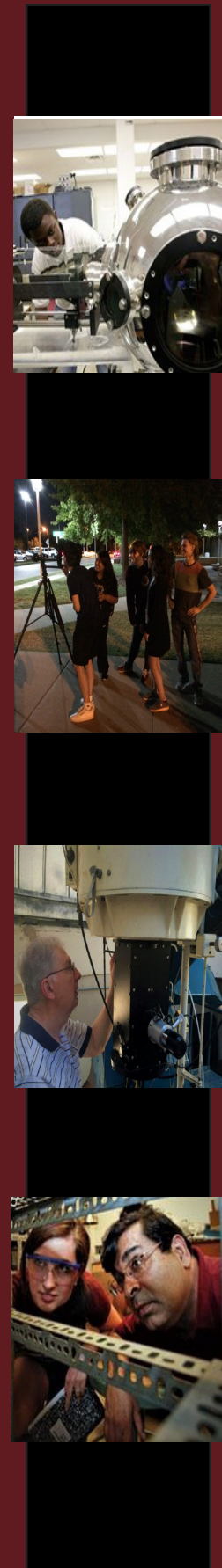
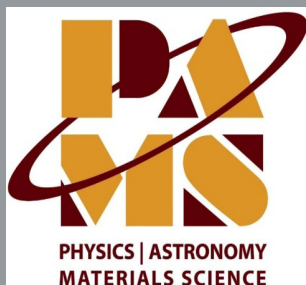
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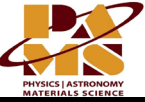
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M o m e n t u M



From the Department Head

*"The Time has Come," the Chair did say
"To talk of many things:
Of budget, personnel - and action plans-
Of cabbages -and deans
And why the state is boiling hot
And whether PAMS has wings*

--with apologies to Lewis



So, even though it seems impossible, this year is my eighth and last as the head of the Department of Physics, Astronomy and Materials Science at Missouri State University. It has been a busy time and, going gently forth into that good night, I want to list some of the things we have done together, shout out to those who have helped along the way and highlight some of the changes since our last newsletter.

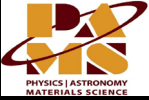
1. The advisory board has been great. It is sometimes difficult for a board to know what will best help a department and sometimes it is hard for a department head to know best how to use them. I really appreciate the many ways members of the board have reached out to help PAMS. Just running down the list, I note that each of them has given of themselves. I can't list everything but some highlights have been:

Charlie helping me connect to JSC, especially with the EPSCoR program in its early stages.
Stephanie working closely with me and other faculty members on a variety of outreach activities
Steve giving so much time to teach young people valuable tools
Larry working with us on the Explorer projects
Dave, Bob and Howard's endowed scholarships, and the financial support of all the board members
Etc. etc.

I appreciate the board's support and guidance. I am sure that you will all continue to work with the new head and give them guidance and feedback.

2. The staff has been essential. I have some strengths but many weaknesses and the staff has been supportive in ways that have helped me do as well as possible. I appreciate Nandita's supervision of the graduate TA's, and Marla has been a helpful addition for the last year and a half, making purchasing less of a burden. Most of all, I would not have survived without my right hand, Laura Rios. She has been a person I could trust and that is saying a lot. She gets stuff done, and sometimes takes names, a trait I greatly value.
3. The dean of CNAS, Tammy Jahnke, has been highly supportive of PAMS. I have served under four deans in my 13 years as a department head and Tammy is the best of the bunch. She expects a lot but no more than she is willing to do herself. I also appreciate her consideration of both my crazy ideas and tendencies to rock the boat.
4. The faculty have helped me out tremendously. I relied on each of them doing their part for the department to move ahead. It is impossible to list all the contributions. From solid teaching to umpteen grant submission to the supervision of numerous student research projects, the faculty really believe in the mission of the department in reaching out to students. I do note that I feel I have gained a sister in physics through my interactions with Becky Baker, a woman whom I respect and admire.

M o m e n t u M



5. The department has seen changes and successes. We started out worrying about the low-completer program and related issues. We addressed those problems but have lately been dealing primarily with large staffing changes. Related to that, I note the following losses and additions:
- Peter Plavchan took a position with George Mason University. We were very sorry to see him go, but wish him the best in his endeavors.
 - Mahua Biswas left to be with her family and took a position in Illinois.
 - Kristy Teague left and Marla Fritz replaced her, initially to work on procurement but now to do our outreach.
 - Evan Frodermann, a specialist in physics education research, joined the department as an Assistant Professor in the fall of 2016. He is doing a good job and we are excited to have him on the team.
6. In 2016, we completed our self-study and had two external reviewers visit campus. They provided us a positive report that also made some suggestions and we spent the spring and summer completing an action plan in response, which we are now working to implement. If you would like a copy, please let me know.

In closing, I do believe that PAMS has wings and will make positive contributions to Missouri State University for years to come. It has been a blast to be department head and I look forward to whatever the future brings.

Go Physics, the M.O.A.S.

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MOMENTUM

The Newsletter of the Department of Physics, Astronomy, and Materials Science at Missouri State University
To submit information for the next Momentum newsletter, e-mail Marla Fritz at Momentum@MissouriState.edu or Marla123@MissouriState.edu

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