

# MARSHALL PHYSICS

## MARSHALL PHYSICS NEWSLETTER # 1

April 2019

### RALPH OBERLY RETIREMENT



Dr. Ralph Oberly will be retiring at the end of this summer after 49 years of service at Marshall. Being a dear friend and a sincere colleague to many Physics faculty, a respected and devoted professor to all students, he has been loved by many generations of Marshall students. He will be missed

so much at Marshall Physics Department!

Ralph Oberly grew up in farm country near St. Paris, Ohio. It was so deep into farm culture that a school field trip would likely be the vocational agriculture boy being bused to a local farm to castrate pigs. From 1959 through 1963 he attended The Ohio State University and earned a B.S. degree in Physics. Following graduation, he was employed by NAA as a Research Engineer in an electronic counter-measures (ECM) group working on a Navy reconnaissance plane. In the fall of 1964 he left NAA to return to Ohio State where he began Ph.D. research on molecular physics under Professor K. N. Rao. As Ralph recalled, the research group under Dr. Rao was large and active with visiting faculty from around the world at all times. Dr. Rao was a slave driver who worked 10 to 14 hours each day and had no reservations about asking graduate students to work on Christmas day. Dr. Rao was so intense that he would pay department secretaries to take his son fishing on the weekends. The PhD in Physics was awarded in 1970.



Ralph Oberly was employed by Marshall University as an Assistant Professor of Physics and Physical Science starting with the fall semester 1970. Tragically, that was the semester of the Marshall University football team plane crash. He served as Department Chair from 1973 to 1985. In 1975 he was awarded tenure and promoted to Associate Professor. In 1984 he was promoted to the rank of Professor. During this interval he spent two summers at Marshall Space Flight Center in

Huntsville, Alabama as a Summer Faculty Fellow learning to do holography. Four other summers were spent at Wright-Patterson Air Force Base in Dayton, Ohio working on various spectroscopy projects.

In 1975 Dr. Oberly was awarded a Fulbright Exchange Teaching Fellowship for the academic year 1975-76. The year was spent in Cambridge England at what is now called Anglia Ruskin University where he had taught variety of courses under the English system. In cooperation with Mr. Gil Graham of Anglia he was able to establish a student exchange program between Marshall and Anglia.



Since about 1987 Ralph has been invited to conduct three day Directed Study programs in Holography at the National Youth Science Camp in Pocahontas County, West Virginia. He was able to accept the invitation about 25 years. This involves working with a select group of very bright, recent high school graduates teaching them the art of Holography in a "camp setting". Camp setting means working with mixed gender campers on the floor of the men's bath house where dark space and running water were available.

For Ralph, the years on the faculty have been filled with course development. Several notable courses created have been Remote Sensing, Image Processing, and Practicum courses created and taught since 1980 with the late Professor James Brumfield. These courses have enabled many students to be employed using image processing skills. Professor Oberly was one of the original faculty members for the Yeager Science Seminar (YGS 271), and team taught the course for about fifteen years. A series of Physics courses were modified to give high school science teachers additional depth and breadth to their science backgrounds. Several teachers earned MS degrees based on their efforts in these courses.

For roughly twenty years Professor Oberly has been the Coordinator of the MS program in Physics and Applied Science (Formerly Physics and Physical Science). He has served as a Marshall marshal for both the May and December commencement ceremonies for many years. He was advisor to the Society of Physics Students. He has organized and led many student field trips for students that were intended to be both educational and fun.

An example would be to visit nuclear and electronics laboratories at the University of Virginia followed by a New River or Gauley River raft trip. Dr. Shanholtzer falsely claims

that Dr. Oberly pushed him out of the raft on at least one occasion. “It is not true!”, Ralph said. He has been advisor to many students at both undergraduate and graduate levels. He is a member of the Optical Society of America and American Association of Physics Teachers.

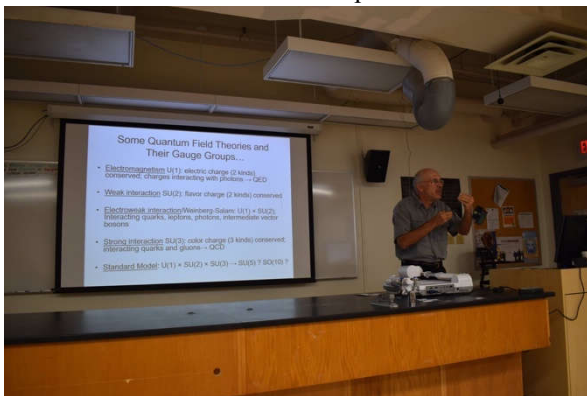


Drs. Wes Shanholtzer and Ralph Oberly with Physics student in a field trip

Ralph Oberly is married to Maryanne Graham and has four adult children.

### MARSHALL PHYSICS WEEK

2018 was the second year the Physics Department organized its Annual Physics Week during the third week of October. The week had a series of activities to honor Physics. On Monday October 15 Dr. John Eric Goff, the Department’s guest, opened the week by a colloquium and a public talk. On Wednesday October 17, the Research Orientation Day featured research talks by all faculty and some alumni to give students a complete picture about the research in the Department.



Dr. Wehner presents on Research Orientation Day

In that evening, all faculty and physics majors together gathered for a Physics BBQ and a Convocation Night where the best students in the departments were honored with their prizes and scholarships.



Students and faculty gathering at Physics BBQ

Dillon Buskirk was awarded an “Outstanding Undergraduate” award while Emily Sutherland and Jayden Leonard received their “Academic Achievement” awards. Selected students have received various of Physics Scholarships.



Students who won prizes and scholarships



The week ended in a high note with a “High School Physics Day” on Friday October 19 when nearly 200 high school students came to have a day full of fun



with physics. The students had a chance to watch all physics faculty showing physics demonstrations, to explore the cosmos from planetarium, to taste and learn how to make liquid nitrogen ice cream. Hopefully the day will be a start of the love for physics of many young and fresh minds!

Our week was successful with effort of everyone, especially with a lot of work from Sean McBride, Nichole Jervis, Dave Sheehan and Stacy Good.





### STUDENT PRESENTATIONS AT NATIONAL MEETINGS

Our physics students Emily Sutherland, Ryan Vincent, and David Facemyer did a great job of giving their presentation of their research at the 2019 March APS Meeting in Boston, MA.



David Facemyer, Emily Sutherland and Ryan Vincent at APS March Meeting

Rae Stanley presented at the 23rd annual winter meeting of the American Astronomical Society in Seattle. Emma Lockyer and Dillon Buskirk both presented in APS April Meeting 2018 while Dillon Buskirk had a poster presentation at APS April Meeting in Colorado in April 2019.

### FACULTY PUBLICATIONS AND ACHIEVEMENTS



Dr. Thomas Wilson's research on high-frequency acoustics has resulted in the discovery of the acoustic equivalent of a laser, and published as a Rapid Communication in Physical Review B. He is a winner of the 2018-19 MU Distinguished Artists & Scholars Award (Senior Recipient in Sciences and Technology). He presented a contributed paper at [Phonons 2018 – The 16th International Conference on Phonon Scattering in Condensed Matter](#), held May 30-June 3, 2018 in Nanjing, China. Wilson's application to organize and host Phonons 2021 at Marshall University was accepted by the International Phonon Advisory Committee.



Dr. Maria Hamilton and student Dillon Buskirk have published "A complete analytic gravitational wave model for undergraduates" in the European Journal of Physics <https://doi.org/10.1088/1361-6404/aaf81e>. She is currently a part of the NSF RII-EPSCOR gravitational waves project. Her research was featured in the Scientist Spotlight Video Series on WV Science & Research web page: <https://wvresearch.org/publications/science-research-video-series>. She also has been featured on the cover of the Winter 2019 issue of Neuron, the West Virginia journal of science and research.



Dr. Sean P. McBride and his collaborators recently have a publication in Soft Matter titled "Conforming nanoparticle sheets to surfaces with Gaussian curvature." With other faculty from CoS, he has contributed to efforts leading to the acquisition of a Field Emission Scanning Electron Microscope to be used for Research and Teaching in CoS, provided by the NSF. He has just recently joined the Appalachian Freshwater Initiative for a collaborative West Virginia EPSCoR project.



Dr. Que Huong Nguyen has published her research in chapter "Mn<sup>2+</sup> Emission in Mn-Doped Quantum Dots" in "Nano-sized Multifunctional Materials", published by Elsevier, 2018.

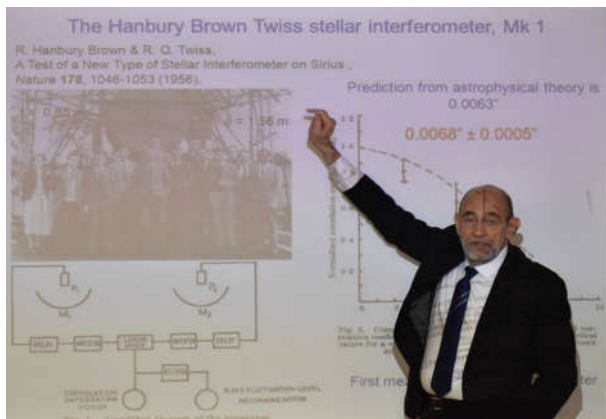
### STUDENT ACHIEVEMENTS



Emma Lockyer has been awarded the Spring 2018 MU Undergraduate Creative Discovery and Research Award for her project "Search for Extra Dimensions in Gravitational Waves", supervised by Dr. Hamilton. Rae Stanley has received the Fall 2018 MU Undergraduate Creative Discovery and Research Award for her "Spectroscopic Analysis of Narrow-Line Radio-Loud Seyfert-1 Galaxies" project, supervised by Dr. Saken. Emily Sutherland has been selected as a recipient of the NASA Student Fellowship and MU Spring 2019 Undergraduate Creative Discovery and Research Award; both in recognition of her research "Hybrid Exciton in Semiconductor Nanorod Coated by an Organic Shell", supervised by Dr. Nguyen. Dillon Buskirk published a paper with Dr. Hamilton "A complete analytic gravitational wave model for undergraduates" in the European Journal of Physics. In 2018-2019 Academic year, Emily Sutherland and Maria Ellie White receive "Outstanding Undergraduate" awards while Michael Moon receives "Academic Achievement" award.

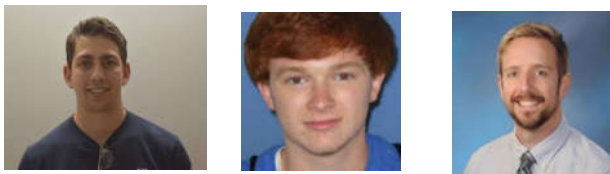
## DISTINGUISHED TRAVELER LECTURER

The APS Distinguished Traveling Speaker Program, for which Dr. Wilson has applied for and get awarded, allowed the Department of Physics to host the Dr. Luis Orozco, Professor of Physics at the University of Maryland. Visiting Marshall for two days (April 3-4), presenting two public lectures and two departmental colloquia as well as meeting informally with students and faculty, Professor Orozco made his visit a great time for students, faculty and everyone who loves Physics.



Drs. Andre Wehner, Maria Hamilton and Thomas Wilson were the ones who organized the visit and made it successful.

## MASTER OF SCIENCE IN PHYSICS



The Physics Department just added the Physics Major to its Master of Science Degree Program. Now the degree program has 2 majors: MS in Physics and MS in Physical and Applied Sciences. Our first 3 MS in Physics students are Dillon Buskirk, Ryan Vincent and David Facemyer.

## COLLOQUIA

Colloquia become regular in the life of Physics Department with speakers being all physics faculty and invited speakers or alumni. Our students are encouraged to attend to be exposed to the world of research.

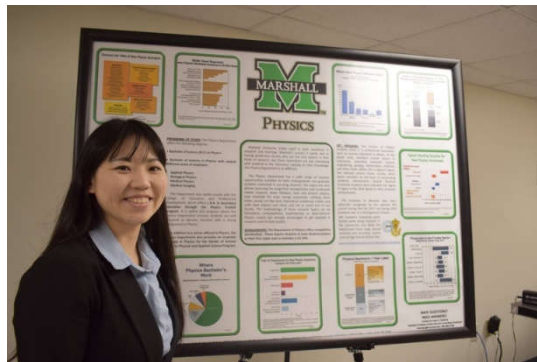
## GREEN AND WHITE DAYS/ HIGH SCHOOL WORKSHOPS



This year the Department is very active in all recruiting events such as Green and White Days, High School Physics

Workshops or Annual Community Science Blitz. When it comes to recruiting events, no matter if it is a Green and White Day or a High School Motor Workshop. Sean and Sachiko McBrides are always the most active and enthusiastic. They always have very cool demos to show, attracting the attention of all the kids. Thank you for making Physics so much of fun, Sean and Sachiko!

## SCIENCE OLYMPIAD



Science Olympiad has been held at Marshall on March 16 of this year. Besides of Sachiko McBride who is the WV State Chapter Director of Science Olympiad, our faculty members Tom Wilson, Jon Saken and Sean McBride participated actively in the event.

**REACHING FOR THE STAR**, the West Virginia STEM and the Arts Film Festival" on March 1st and 2nd at Marshall University. One third of the Physics Department faculty came out to help recruit and enlighten the minds of the younger generation. Dr. Saken ran the portable planetarium, Dr. Hamilton provided demonstrations related to gravity waves, Dr. Sachiko McBride brought many hands-on engaging physics demonstrations, and Dr. Sean P. McBride debuted the Physics Department's new portable AFM.



Dr. Saken always lets students explore the planetarium in different occasions

## SOCIETY OF PHYSICS STUDENTS

For 2017-2018 Academic year, [the Society of Physics Students](#) at Marshall earned the title of a Distinguished SPS Chapter.

## SIGMA PI SIGMA

On October 18, 5 Marshall Physics students were inducted to Sigma Pi Sigma, the honor Society of Physics students.