Dear Physics Department Alumni -

I hope you are well! First and foremost, on behalf of the Physics Department at Marshall University, I cordially invite you and your family to participate in the upcoming events we host as part of Physics Week this fall at Marshall. Enclosed with this newsletter is your invitation and below is a brief description of events. Please RSVP with Dr. McBride (mcbrides@marshall.edu). If you are in the area, and can make it out, we would love to see you there! If you are receiving only the print version of this newsletter, that means we do not have an active email for you. Please email mcbrides@marshall.edu for a pdf of this newsletter with active hyperlinks. I encourage you to check out our new up-to-date Physics Department website https://www.marshall.edu/physics/; specifically, check out our Department News , Upcoming Events, Society of Physics Students, and our Alumni Spotlight pages.

Monday, October 15, 2018, kicks off Physics Week with the Physics Department hosting Dr. John Eric Goff, Prof. of Physics from the University of Lynchburg. Professor Goff has established an international reputation in the field of sports physics. He will be giving a colloquium talk from 2-3 pm (Science Building 277) focusing on 'Friction Challenges from the Sports World' and a general audience talk accessible to everyone from 7-8 pm (Smith Hall 154) focusing on a 'Summer of GREAT Sports Science'. In part of his colloquium, he will discuss air friction in the context of World Cup soccer balls and also discuss friction between shoes and hard courts in tennis, particularly the relatively new tactic of sliding on a hard court.

Physics Week continues with Research Orientation Day on Wednesday, October 17, 2018. From 3-5:30 pm faculty and a few physics alumni will provide short talks in room 277 in the Science Building, followed by a BBQ downtown at Heritage Station starting at 6:30 pm. If you need assistance with directions to Heritage Station please contact the Physics Department Secretary, Nichole Jervis (n.jervis@marshall.edu). Maybe your physics education has led you to an exciting career that you would want to come back on a Research Orientation Day in the future to talk about, please let us know. Arrangements could be made for you to come give a talk at our next Research Orientation Day or one of our monthly colloquiums.

The Physics Week finale is High School Physics Day on October 19th from 10 am-1:30 pm. If you have a youngster in the family (son, daughter, niece, nephew, grandchild, etc.) interested in science, I encourage you to bring them to this event. Please RSVP. This inaugural event was very successful in fall 2017, we hosted 100 students and now we have over 200 registered for Fall 2018. Local high schoolers in physics, math, chemistry, and biology will see fun and exciting physics demos performed by the Physics Faculty. Teachers and students will also have the opportunity to explore the cosmos in the department's portable planetarium (Robert C. Byrd Biotechnology Science Building, first floor lobby) and investigate the nano-world using a Scanning Electron Microscope (SEM) in Science Building 106. Liquid nitrogen ice-cream will be provided in room 179 of the Science Building. A similar event for elementary school age kids will occur in Spring 2019, 'Physics Phamily Phun Day', we will send you more information and invites as the event approaches.

Many great things have occurred in the Physics Department in the last academic year as a result of numerous efforts by physics faculty and physics students. All of these accomplishments are too numerous to mention all here in a single letter, but more details can be found on our Department News page, Faculty Achievements page, and Student Achievements pages on our website. As a result of these efforts, we have seen an enrollment spike in our number of majors, increasing from 9 participating majors in Fall 2017 to 16 participating majors in Fall 2018!! In fall 2018, the Physics Department also has added the Major of Physics to its Master of Sciences program. We have 3 new graduate students who are working on their MS in Physics degree: Dillon Buskirk with Dr. Hamilton, David Facemyer with Dr. Nguyen, and Ryan Vincent with Dr. McBride. This is all despite a decline in University and College of Science undergraduate enrollment.

The department has made enormous efforts in terms of outreach and recruiting starting with events occurring during the "Great American Eclipse" on August 21, 2017. Dr. Maria Babiuc-Hamilton provided lectures to the public on Buskirk field about the eclipse images they were seeing from a tracking telescope that was set-up for public viewing by Dr. Sean P. McBride. Dr. Curt Foltz assisted the public in using several Dobsonian telescopes. Dr. Jon Saken, representing the West Virginia Space Grant Consortium, also launched a high-altitude balloon during the eclipse as part of a nationwide, NASA-sponsored project to live-stream aerial video footage of the event. In the

spring, Dr. Saken also led elementary school students from Cabell and Putnam counties through activities at the 3rd annual Sky Festival held at the Marshall University. Drs. McBride and Saken, both Co-State Directors for Science Olympiad at Marshall, helped arrange numerous events for the state level Science Olympiad in early spring. The Physics Department also has welcomed Dr. Sachiko Toda McBride, from Univ. of Wisconsin-Eau Claire, to the department at the start of fall 2018 (wife of Dr. Sean P. McBride). She is also now the lead State Director of Science Olympiad. Since Fall 2017, Dr. McBride with the help of students in Society of Physics (SPS), has organized or has participated in over 25 recruiting events involving both faculty, students, and future students. These events include large multi-department events such as the College of Science fall Halloween Bash and the College of Science spring Science Blitz to specialized high school workshops on projectile motion and DC motors, to local college fairs. The SPS organization has grown from 1 to 16 participating students in the last year with Dr. Sean P. McBride as the faculty advisor.

The department has also been active in research and funding opportunities. Dr. Maria Babiuc-Hamilton and Dr. Sean P. McBride have participated in a collaborative West Virginia EPSCoR project (Experimental Program to Stimulate Competitive Research) to build national and international status in gravitational wave astrophysics and to build competitiveness in freshwater science with the Appalachian Freshwater Initiative (AFI). Dr. Babiuc-Hamilton has been on board with the project since 2015 investigating methods for solving Einstein's equations numerically that simulate black hole evolution, while Dr. McBride has just recently joined the AFI investigating the potential use of nanoparticle membranes for water purification. Dr. McBride is a Co-Principle Investigator on a proposal that has recently been funded by the National Science Foundation for acquisition of a new $399,000 Scanning Electron Microscope to view his nanoparticles. Drs. Hamilton and McBride also worked together to organize the Joint Spring 2018 Meeting of the American Association of Physics Teacher, Appalachian & Kentucky Sections. Dr. Thomas Wilson has earned two awards this academic year for his ongoing research in developing a Terahertz Acoustic Phonon Laser: (1) the MU Artists and Scholars Award in Science and Technology and (2) the John Marshall Summer Creative Works and Scholarship Award.

Dr. Huong Nguyen has published a chapter titled " Mn 2+ Emission in Mn- Doped Quantum Dot" in the book " Nano-sized Multifunctional Materials", Elsevier 2018, which will come out in November 2018. Dr. Nguyen and Dr. Judy Fan gave oral presentations at the 2018 APS March Meeting, which was held in Los Angeles, CA. Dr. Wilson and Dr. Fan both presented contributed papers at Phonons 2018 – The16th International Conference on Phonon Scattering in Condensed Matter, held in Nanjing, China. In Fall 2017, Dr. Maria Babiuc-Hamilton and collaborators published a paper in the journal Classical and Quantum Gravity, titled, "GiRaFFE: an open-source general relativistic force-free electrodynamics code." This fall, Dr. Wilson, Dr. Nguyen, and Dr. S. P. McBride have also submitted manuscripts to the journals of Applied Physics Letters, Physical Review B, and Soft Matter, respectively.

Our Alumni Spotlight has some new faces on it, thank you for your contributions! If you want to contribute your success story, please let us know. Please send Dr. Sachiko Toda McBride (mcbridesa@marshall.edu) an updated picture and a brief write up that can be posted online; these are very helpful for current and future students and the department is proud to hear of your successes.

We also now have a Facebook Page managed by Dr. S. P. McBride and Instagram account managed by Nichole Jervis (https://www.facebook.com/MUPhysicsDept/) & (https://www.instagram.com/muphysics/). We have found it difficult to track down past Alumni (both previous students and faculty), so please share this pdf or print copy with any Physics Alumni of any kind. We would be very happy meet you in person and learn about the department from past Alumni and find out what everyone has been up to since graduating from Marshall. We hope to see some of you at events during Physics Week this year and hope to hear from many more of you through your stories on Alumni Spotlight.

Sincerely,

Dr. Sean P. McBride, Tenure Track Assistant Professor, Marshall University
Recruitment Committee Chair for Physics, Society of Physics Student Faculty Advisor, & Physics Co-Webmaster
Marshall University, Department of Physics, One John Marshall Drive, Huntington, WV 25755
Email: mcbrides@marshall.edu, **Office/Lab:** Science Building 152/152A **Office/Lab:** (304) - 696 - 2758/8852