Marshall University
Physics Program
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Huntington, WV 25755

Sean P. McBride, Ph. D.

Full - Curriculum Vitae

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(pdf version with active hyperlinks available upon request)

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EDUCATION

(2006-2012) **Ph.D. Physics**
Kansas State University, Manhattan, KS
Dissertation: "Surface science experiments using atomic force microscopy."

Advisor: **Dr. Bruce M. Law**
Dissertation available online:
krex.k-state.edu

(2003-2005) **M.S. Physics *(a terminal master's program)***
Miami University, Oxford, OH
Thesis: "Using perturbed angular correlation spectroscopy to characterize the dependencies of phase transition on impurity levels in synthetic hafnium silicate and synthetic zirconium silicate."

Advisor: **Dr. Herbert Jaeger**
Thesis available online:
etd.ohiolink.edu

(1998-2003) **B.S. Physics**
Bloomsburg University, Bloomsburg, PA
Undergraduate Research: Effects of corona discharges on copper emitter tips.

Undergraduate Research Advisor:
Dr. Charles G. Noll

SUMMARY of ACADEMIC APPOINTMENTS

(2016–Present) **Associate Professor, Marshall University, Department of Physics, Huntington, WV**
- Tenure Track Assistant Professor (2016 – 2023, 1-year delay, covid19 extension required by all faculty).
- Lectures: • University Physics I (PHY 211) - calculus-based
  • College Physics I & II (PHY 201 & 203) - algebra-based.
- Laboratories: General Physics I & II Lab (PHY 202 & 204) & Advanced Lab (PHY 444/544).
- Lead upper-level undergraduates and M.S. level students in independent studies in Classical Mechanics, Advanced Lab, Capstones, & MS Thesis Research (PHY485/492/586/682/685).

(2015–2016) **Physics Instructor (9-month terminal appt.), Kansas State University, Physics Dept., Manhattan, KS**
- Lecture Professor for algebra based General Physics II (S16 ~ 250 Students) and Studio Instructor for calculus-based Engineering Physics II (F15 ~ 120 Students).

(2012–2015) **Postdoctoral Scholar, University of Chicago, James Franck Institute, Chicago, IL**
- Investigated self-assembled nanoparticle-based structures for desalination and filtration applications. Advised by Dr. Heinrich M. Jaeger (U. of Chicago) & Xiao-Min Lin (Argonne National Laboratory).

(2006–2012) **Graduate Research/Teaching Assistant, Kansas State University, Manhattan, KS**
- Ph.D. candidate researcher under the guidance of Dr. Bruce M. Law, Recitation Instructor for algebra based General Physics II & Studio Instructor for calculus-based Engineering Physics I & II.

(2009) **Visiting Researcher, Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany**
- Ph.D. visiting student researcher under the guidance of Dr. Ralf Seemann. Employed by KSU, not MPI.

(2005–2006) **Graduate Teaching Assistant, University of Nebraska, Lincoln, NE**
- Recitation and Laboratory Instructor for algebra based General Physics I.

(2003–2005) **Graduate Teaching/Research Assistant, Miami University (terminal M.S. program), Oxford, OH**
- M.S. student researcher under the guidance of Dr. Herbert Jaeger, Instructor for algebra-based Physics Laboratory I & Advanced Electronics Instrumentation Laboratory.

(2002–2003) **Undergraduate Laboratory Assistant/Physics Tutor, Bloomsburg University, PA**
- Undergraduate TA for Advanced Physics Laboratory/Tutored algebra & calculus-based physics courses.

RECOGNITIONS & AWARDS

(2026) Annual Excellence in Grantsmanship Celebration Dinner – Held at the Brad D. Smith Foundation Hall, 1/29/2026. Sponsored by MURC and Academic Affairs. All PIs on submitted or awarded grants that have been processed through MURC during the 2024-2025. This evening was dedicated to honoring the outstanding achievements in research and sponsored programs, those in attendance were celebrated for their leadership, innovation, and dedication. This was a campus wide search for recognition.

(2026) John Marshall Leadership Fellowship Program – Participant in the spring 2026 cohort. The broad aims of the John Marshall Leadership Fellows Program at Marshall University are to: Identify faculty, staff and administrators who have leadership potential; Provide information, training and development activities related to institutional processes, policies, and decision-making pathways; Build participants' competence through leadership theory and research; and Apply leadership principles to a timely problem-solving project, addressing an issue of significance to the university.

(2025) Selected as a Finalist for The Reynolds Outstanding Teaching Award – "Made possible with a gift from Marshall and Shirley Reynolds and the Marshall University Foundation, the Marshall & Shirley Reynolds Outstanding Teacher Award is awarded annually to…a faculty member who demonstrates superior teaching". "Although you were not selected for the award, please know that being nominated represents a substantial achievement and recognizes the outstanding quality of your work and contributions to the institution."

(2025) Student Success Champion - I was one of 11 faculty members campus wide at Marshall University that were nominated for this award by the students. I am humbled to have received this award and recognition for my dedication, mentorship, and impact in driving student success across campus. Recognized on 5/6/2025 in the John Marshall Room in the memorial Student Center.

(2025) Annual Excellence in Grantsmanship Celebration Dinner – Held at the Brad D. Smith Foundation Hall, 1/30/2025. Sponsored by MURC and Academic Affairs. All PIs on submitted or awarded grants that have been processed through MURC during the 2023-2024 were invited with the purpose "to honor and celebrate your achievements …Your contributions are pivotal to our collective success, and we look forward to celebrating the remarkable innovation and research endeavors that make Marshall shine!" This was a campus wide search for recognition.

(2025) (2024) (2023) (2022) (2021) (2020) Marshall University Chapter of the Society of Physics Students Outstanding Chapter Award - An Outstanding Chapter award represents that highest level of achievement and distinction given to SPS chapters across the nation and is received by less than 12% of top chapters annually, with just 96 of 844 chapters honored in 2020, 80 of 844 chapters honored in 2021, 86 of 844 chapters honored in 2022, and 73 of over 800 chapters honored in 2023. In fall 2017 I took the reigns of MU's SPS chapter. With the help of students, we have received grants and funding from American Institute of Physics, NASA, and large external donor contributions exceeding $30,000. I have thoroughly enjoyed assisting and guiding the students with their successes and providing unwavering leadership. Such consecutive awards would not be possible without amazing motivated students in SPS who have themselves transformed into great leaders and do amazing work. Awards for various years found at: https://students.aip.org/outstanding-chapter-award

(2024) Inaugural Excellence in Grantsmanship Celebration Dinner (1 of 177 invited) – Held at the community hub of the Coalfield Development's West Edge Factory. Sponsored by MURC and Academic Affairs. Recognized via attendance. All PIs on submitted or awarded grants that have been processed through MURC during the 2022-2023 were honored for their, "hard work and all you do to make Marshall a better place for our students, community, and state!" This was a campus wide search for recognition.

(2024) Most Outstanding New Student Organization awarded to the MU Astronomy Club – Since 2022 I have been the faculty advisor to the MU Astronomy Club, leading the student officers and group to success. The award was presented by the Division of Student Affairs – LEAD Center. This was a campus wide award.

(2024) **Community Service Event of the Year awarded to The Society of Physics Students –** Since 2017 I have been the faculty advisor to the MU SPS chapter, leading the student officers, and helping them make connections and perform outreach and recruitment with the on and off campus communities. The award was presented by the Division of Student Affairs – LEAD Center at MU. This was a campus wide award.

(2023) **The Student Success Award -** Recognized by nominations from the students for "making student success a reality"! The award was presented by the Provost/Senior VP for Academic Affairs and the Director of the Center for Student Success. This was a campus wide award that all faculty, staff, and administrators were eligible for.

(2023) **Nominated for The Society of Physics Students Advisor of The Year Award –** "The Outstanding SPS
(2022) Chapter Advisor Award is the most prestigious SPS award. It recognizes annually an outstanding SPS chapter advisor. A truly successful SPS chapter requires leadership, organization, a broad spectrum of activities, and enthusiastic student participation. An outstanding chapter advisor provides the stimulus for such success." https://students.aip.org/outstanding-chapter-advisor-award-winners One award nationally is made each year. Students from the MU SPS chapter have nominated me two consecutive academic years for this award. I was the runner up for the nation for this award in 2022.

(2022) **Advisor of The Year Award for Sigma Phi Epsilon -** This award was presented as a result of the steadfast leadership and advising provided to the Sigma Phi Epsilon, ΣΦΕ, West Virginia Gamma Chapter. Undoubtably nominations were received from brothers within this fraternity. Nominations for this campus wide award were possible for all eligible faculty advisors of fraternities and sororities with the awardee selected by those in the Division of Student Affairs – the LEAD Center, specifically by those in Fraternity & Sorority Life. Additionally, Sigma Phi Epsilon in 2022 was the fraternity on campus with the highest GPA.

(2020) **Marshall University Nomination for the Pickens-Queen Teaching Award, three consecutive years -**
(2019) Each year from 2018 to 2020 I was nominated for this campus wide award by the Dean of the College of
(2018) Science, the Physics Department Chair, and presumably a decent handful of my previous students each year. Though not selected as a finalist for the award, "…being nominated represents a substantial achievement and recognizes the outstanding quality of your work and contributions to the institution…" ~ *Dr. Karen McCommas, Executive Director, Center for Teaching and Learning.*

(2019) **Marshall University Chapter of the Society of Physics Students Distinguished Chapter Award** - This
(2018) award is the second highest distinction given to SPS chapters annually. During these awards years, only 11% of SPS chapter received this level of distinction each year (thus in the top 22% of all chapters in the nation). Earning back-to-back Distinguished Chapter awards in 2018 and 2019 signifies the enormous amount of time and effort by both the SPS advisor and the SPS students in the group to be successful. "…I can attest that when an SPS chapter is thriving and integrated into the department environment, it is often a sign of an advisor who is committed and actively engaged with the students. To have your group named as a Distinguished Chapter is a testament to your leadership skills and your ability to foster leadership among your students." ~ *Brad R. Conrad, Ph.D. Director, Society of Physics Students & Sigma Pi Sigma.*

(2019) **Most Improved Student Organization Award at Marshall University -** When I took over the Society of Physics Students (SPS) group as faculty advisor in fall 2017 there was one registered student that could be found and $84 dollars in a bank account. Under my leadership, the SPS group has received consecutive national recognition for recruitment and outreach, they have published 4 articles based on their recruitment and outreach efforts in the SPS Observer as of spring 2024 (4th article to be released February 2024), and have additionally received 6 consecutive national awards. This 2019 university wide award was presented to the SPS group at The 41st annual prestigious Leadership & Service Award Ceremony.

(2019) The Future Faces Award - American Institute of Physics - The students I advised in SPS, particularly Ellie White, was the driving force for behind this SPS chapter award. These national awards go to SPS chapters to support projects that are designed to promote physics across cultures. Only seven awards had been distributed by the national office in 2019 and MU SPS received one of them. The goal of the Future Faces of Physics Award was to promote the recruitment and retention of people from groups historically underrepresented in physics. The financial award was to be used to host a talk titled "Astrophysics in the Appalachians: A Perspective on Pulsars" by Dr. Natalia Lewandowska. Dr. Lewandowska was a female Astrophysicist and postdoctoral fellow of West Virginia University at the time. She was scheduled to visit Marshall's Huntington campus in Spring 2020 to give one public lecture and one colloquium-style talk for faculty, staff, and students of Marshall's Department of Physics. This announcement has been featured in nationally distributed Spring 2020 edition of Radiations (pg. 8), the official publication of Sigma Pi Sigma. The event was postponed due to COVID-19 and turned into The Future Faces Speakers Series which has been attempted to be held monthly during the academic year ever since fall 2020. Since the initial one-time award, dozens of talks in this series have been funded by the American Institute of Physics, NASA, and the MU SPS Fund. Talks in the series concluded in fall 2024.

(2019) Exceptional Pre-Tenure Evaluation Status, Satisfying BOG Policies AA-7 (2.2.2) & AA-28 (4.23) - During my pre-tenure evaluation process, the Dean of COS, the Department Chair of Physics, and the two most senior faculty members within the Department of Physics at the time that made up the Promotion and Tenure Committee all gave "exemplary ratings" on my performance in all three areas of Faculty Responsibility (Research, Teaching and Advising, and Service). This resulted in a 5% base salary increase.

(2012) Kansas State University Physics Department Graduate Student Research Award - Out of the three finalists, I received the financial award for my research work related to determining the line tension of sub-micron particles at liquid-vapor interfaces. The entire graduate student population in the Physics Dept. (60+ scholars) could compete for this award as long as they had a nomination from their faculty research advisor. After submitting research progress reports and being nominated by my Ph.D. advisor, an award committee of senior research professors chose three finalists based on quality of research and performance during a poster session on their research. After presentations of our work I was selected as the winner.

(2010) Selected to attend the inaugural Faraday Discussion Graduate Research Seminar - Applicants from around the world were selected by the organizing committee based on scientific merit and academic credentials. Only 43 students, me included, were selected to attend the first of its kind seminar. https://www.news.vcu.edu/article/VCU_Hosts_Faraday_Discussion_FD146_and_the_Inaugural_Faraday

(2010) National Science Foundation/American Chemical Society Fellowship - Full financial support to present research and give an invited talk at the inaugural Faraday Discussion Graduate Research Seminar and attend the 146th Faraday Discussion meeting. Of the 43 students from around the world that were selected to attend the seminar, based on the submitted abstract regarding my research, I was further invited by the organizing committee to be one of only 6 selected graduate students in the world to orally present my work on the new AFM calibration technique developed for colloidal probe AFM user community. At the current time, it was only the second time the prestigious Faraday Discussion meeting was ever held in the United States (the first time was at Notre Dame in 1963).

(2005) Sigma Xi-Grants-In-Aid of Research Award - Financial support awarded for research entitled, "Study of Displacive Phase Transition in Zircon and Hafnon." One of only several people campus wide received this award. Grants-in-Aid of Research Awards March 15, 2005 Grant Cycle

(2003) Bloomsburg University, Kozloff Undergraduate Student Research Award - Financial support awarded for research on the topic of "Initial Stages of Corona Induced Wear of Copper Emitters." One of only several people campus wide who received this award. Award helped with research components and funds to travel to ESA-IEEE Joint Meeting on Electrostatics, 2003, University of Arkansas, Little Rock, Arkansas

(2003) Bloomsburg University Department of Physics and Engineering Technology Award in Recognition of Outstanding Achievement as a Student of Physics - Awarded based on highest GPA in graduating class.

FACULTY ADVISOR for MARSHALL UNIVERSITY STUDENT ORGANIZATIONS/GROUPS

(2022-Present)	Marshall University Astronomy Club	(*MUAC*)
(2021-Present)	WV Gamma Chapter of Sigma Phi Epsilon	(ΣΦE)
(2017-Present)	Sigma Pi Sigma Physics Honors Society	(ΣΠΣ)
(2017-Present)	The Society of Physics Students	(SPS)

PROFESSIONAL AFFILIATIONS and ACTIVE MEMBERSHIPS

(2019-Present)	Appalachian Section of AAPT	(A-AAPT)
(2017-Present)	American Association of Physics Teachers	(AAPT)
(2007-Present)	American Physical Society	(APS)
(2005-Present)	Sigma Xi Research Society	(ΣΞ)
(2003-Present)	Sigma Pi Sigma Physics Honors Society	(ΣΠΣ)

RESEARCH PATENTS

(Research Homepage: https://mupages.marshall.edu/sites/mcbrides/research-pages/#gsc.tab=0)

(2013) No. - WO/2013/074669- Nanoparticle-Based Desalination and Filtration System

RESEARCH COLLABORATIONS

(2017 - 2021) Appalachian Freshwater Initiative: In 2015, West Virginia EPSCoR was awarded $20 million dollars in funding from the National Science Foundation (NSF) to build a national and international status in gravitational wave astrophysics and to build competitiveness in freshwater science with the Appalachian Freshwater Initiative (AFI). The Research, Infrastructure and Improvement grant (RII) began in 2015 and continued for five years with a one year no cost extension. I joined the AFI research collaboration in the late Summer of 2017.

EXTERNAL FUNDING

Funding Opportunities Submitted as Principal Investigator (total is state & federal, does not include in-kind):

(2025) $ 2,000 - NASA WV Space Grant Consortium, - received 9/30/2025, **funded.**
(2024) $ 3,000 - NASA WV Space Grant Consortium, - received 11/11/2024, **funded.**
(2020) $ 19,933 - USGS State Water Resources Research Institute - submitted November 17th, 2020, **not funded.**
(2019) $ 249,821 - DOI DWPR Program - submitted December 4, 2019, **not funded.**
(2019) $ 149,966 - DOI DWPR Program - submitted May 1, 2019, **not funded, encouraged to resubmit.**
(2018) $ 221, 810 - DOI DWPR Program - submitted December 12, 2018, **not funded.**

Funding Opportunities Submitted as Co-Principal Investigator

(2026) $2,000,000 - National Science Foundation, Scholarships in Science, Technology, Engineering, and Mathematics Program (S-STEM) – (NSF S-STEM award number 2619971). Marshall University proposes a six-year S-STEM Track 2 project to expand access, persistence, and degree completion for academically talented, low-income students in the Physical and Quantitative Sciences (PQS). Three cohorts of twelve scholars (36 total) will receive renewable scholarships and participate in a coordinated cohort model aligned with degree progression **– funded.**

(2026) $2,425,600 - White Paper for Department of War, National Defense Education Program, Science, Technology, Engineering, and Mathematics. BEAM: Bridging Education and Manufacturing.

Multidisciplinary Education and Workforce Development Program for Defense-Relevant Optics - submitted April 13th, 202026, **- under review.**

(2024) $1,806,610 - National Science Foundation Scholarships in Science, Technology, Engineering, and Mathematics Program (S-STEM) - **not funded**.

(2018) $399,000 - National Science Foundation, MRI - submitted February 5th, 2018. **List price $533,774**. "Acquisition of a Field Emission Scanning Electron Microscope for Research and Teaching in the Fields of Chemistry, Geology, Biology, Physics, and Forensic Science, is under the direction of Rosalynn Quinones-Fernandez (PI), Sean P. McBride (co-PI), Aley El-Shazly (co-PI), Iyad A. Hijazi (co-PI), Michael L. Norton (co-PI)." ~ Denise Martin, Grants and Agreements Officer. Press releases found below **- funded.**

- National Science Foundation, August 1st, 2018
- The Parthenon, September 19th, 2018
- MU University Communications October 12th, 2018
- West Virginia's Journal of Science and Research, Neuron, Fall 2018
- We Are Marshall Newsletter, October 17th, 2018

Funding for Mentorship/Research Programs for Students Submitted as Senior/Supporting Personnel:

(2024) $371,668 – REU Site: Appalachian Mathematics and Physics Site (marshall.edu), Source: NSF - submitted November, 2023, Starts June 3rd 2024 - **funded.**

(2021) $521,054 - NSF REU Site: WV Student Water Research Initiative. Met virtually with multiple researchers and administrators across the state (WV HEPC, WVU, WVSU, and MU) multiple times over summer 2021 with key meetings on 6/4 and 6/14 and I provided an example narrative for all involved - **not funded**.

(2020) $486,009 - NSF REU Site: WV Student Water Research Initiative. Met virtually with multiple researchers and administrators across the state (WV HEPC, WVU, WVSU, and MU) multiple times over summer 2020 - **not funded**.

Projects Later Joined as Research Mentor for Undergraduate Students:

(2024-2025) $323,910.00 - REU Site: Investigation of Subterranean Features in the Appalachian Region. Source: NSF – not part of original submission process, Starts May 1st, 2022 - **funded.**

***Funding Opportunities Submitted as Senior Personnel*:**

(2021) $ 1,999,994 - USACE Engineer Research and Development Center (ERDC). Determining Environmental Triggers of Harmful Algal Blooms and Toxin Production for the Purposes of HAB Prediction, Avoidance, and Remediation (HAB-PAR). Notice of intent to submit a full proposal, submitted July, 2020 - selected for full proposal development. Full proposal submitted February 2021. **Not funded**.

(2018) $ 6,319,973 - White Paper for 2020 NSF EPSCOR RII (NSF $4,923,980/Institution Match $1,395,993) - submitted September 30th, 2018, **not selected for full proposal**.

External Funding for Travel:

(2021) $1,000 - NASA WV Research Enhancement Award - Funds used to travel to Chicago Illinois for the American Physical Society March Meeting in 2022 and present recent research. The American Physical Society (APS) March Meeting 2022 is one of, if not, the fundamental conference to attend to present findings in physics research. The audience will be a combination of 12,000 or more physicists made up of professional physicists, scientists, and students in advanced study from around the World. **Funded**.

Source of Seed Funding:

(2017 - 2021) **$ 21,066,907.00 - NSF RII Track-1: Gravitational Wave Astronomy and the Appalachian Freshwater Initiative (AFI).** NSF Award OIA-1458952. Supported my graduate student Ryan Vincent's external stipend at $1,000/month for a total of 19 months along with $1,264.00 for supplies. Supported a total of 5 months of summer faculty salary from summer 2017 through to summer 2021 to assist various students with summer research opportunities. This fund also was used to support 2 PERT teams (Preservice and Early Career Research for Teachers) totaling stipends for two high school teachers, two high school students, one College of Education and Professional Development student, money for supplies, and 2 months faculty summer salary (~$37,000 for PERT). The McBride Laboratory at Marshall University was highlighted on page 14 of the AFI Newsletter, September 10, 2018 and commentary from McBride on the project was featured in the Neuron Magazine (pg. 9), Summer 2021. The Neuron Magazine has highlighted the work completed with PERT Students, issue: Neuron_Vol18_Issue1_Digital.pdf (wvresearch.org)[pg.9]. This work with PERT was submitted as 'NSF Highlight' in late April of 2022 for the annual report.

INTERNAL FUNDING - DEPT./COLLEGE/UNIVERSITY SUPPORT for VARIOUS ENDEAVOURS

(2022) **Travel Funding - $1500** from COS Travel Fund to assist in my travel to Physics Congress 2022, Washington, D.C., October 6th-8th to assist a student in presenting our research and being and exhibitor to advertise the graduate programs in Physics. This was the student's first conference.

(2022) **Travel Funding - $521** from Physics Department to assist in my travel to Fall 2022 Meeting of the APS Eastern Great Lake Section and the Michigan Section of AAPT: Pushing Boundaries in Physics and Education. October 21-22, 2022. Lawrence Technological University, Southfield, MI, here a student presented our research.

(2021) **High School Student Research Funds -** The Physics Department contributed **$1061** for supplies to build custom research components for high school students to preform research over summer 2022.

(2021) **Sulfur Hexafluoride Gas -** The Physics Department has contributed **$569** to purchase this gas for an Elementary school Demo Show over summer 2022.

(2019) **Sponsorship of High School Physics Day** - The JCESOM proudly sponsored High School Physics Day in October of 2019 for **$1,000**. This a result of the mutally beneficial recruiting collaborative connections I have made with the Joan C. Edwards School of Medicine over the years.

(2019) **Sudexo Catering Fund Award - $1, 480** to cover all food costs related to High School Physics Day 2019.

(2019) **Travel Funding -** The below funding was approved to assist in my travel with a graduate student to present our research on 3/3/2019 to 3/7/2019 at the American Physical Society March Meeting, Boston, MA.

(1) $2,100 - COS Travel Funding for Faculty & **(2) $600** - INCO Faculty Development Funding

(2018) **Travel Funding - $675** from COS travel Fund to assist in my travel to the Physics and Astronomy New Faculty Workshop, Holiday Inn College Park, 10000 Baltimore Avenue, College Park, Maryland, 20740, MD, October 25th-28th.

(2017) **Travel Funding - $1400** from COS travel Fund to assist in my travel to present a poster on our department at a Building Thriving Undergraduate Physics Programs Workshop, American Center for Physics College Park, Maryland, February 10-11th.

EXTERNAL and INTERNAL FUNDING/GIFTS THAT I HAVE HELPED STUDENTS SECURE

(2024) **Society of Physics Students and Science Olympiad Student Organizations- $8760 in Total -** The NASA
(2023) WV Space Grant Consortium has provided funding for numerous Marshall University undergraduate
(2022) students, who took on the role of virtual undergraduate coaches to work directly with the 2021 - 2023 West
(2021) Virginia State Championship Science Olympiad teams. This grant also funds the Future Faces of Physics Speaker Series in fall 2021 through fall 2024 and in recent years has helped participating schools with registration costs. Principal Investigator Sean P. McBride through Grant # 80NSSC20M0055 2021-2023 (Co-PI in 2024). Featured in Marshall News and NASA West Virginia on April 1st, 2021 and Marshall News on March 21st, 2022. All coaches were supplied NASA WVSG T-shirts in 2022.

(2023) **Marshall University Astronomy Club Telescope Donation - $4,999 Gift-in-Kind** - The MU Astronomy Club, thanks Dr. James Smith who recently donated his 12" LX200 Schmidt-Cassegrain telescope to the Marshall University Astronomy Club (MUAC).

(2023) **Marshall University Astronomy Club Telescope Donation -** The MU Astronomy Club, thanks Mr. Johnathan Booton who donated his Celestron Compustar C8 (11) telescope (**rare telescope from the 80's**). This vintage scope is loaded with custom upgrades to keep it up to date, working flawlessly for the next generations of students. Johnathan was a systems engineer and previously updated the Compustar with a new 27C512-15 IC and updated the firmware to be Y2K compliant. The students in the group, along with their club advisor Dr. Sean P. McBride from the physics program, look forward to working with the telescopes and involving the on and off campus communities in public viewing events.

(2023) **AJ Messinger - $5000 -** Awarded a NASA Undergraduate Research Fellowship for the fall 2023 and spring 2024 semesters. "Pore Fouling affects in Azo-Dye-Functionalization." Funded by NASA West Virginia Space Grant Consortium.

(2023) **AJ Messinger - $4000 -** Summer Undergraduate Research Fellowship Experience. "The Role of Intrinsic Charge in Azo-Dye-Functionalization Membranes." Funded by the WV Higher Education Policy Commission, Science, Technology and Research Division.

(2022) **Marshall University Astronomy Club Telescope Donations- $4,999 Gift-in-Kind -** The Marshall University Astronomy Club, through the College of Science and Marshall University Foundation, has graciously accepted a generous donation of astronomy equipment from Richard and Judy Dunlap. Through the assistance of the students in the group and their advisor, the donation arrived on campus and includes a 200 mm Dobsonian telescope, a TeleVue-85 telescope, a Celestron C-6 telescope, with various eyepieces and accessories. The students in the group, along with their club advisor Dr. Sean P. McBride from the physics program, look forward to working with the telescopes and involving the on and off campus communities in public viewing events.

(2021) **Great Lunar Expedition for Everyone - $4,000 -** Sponsored by the NASA WV Space Grant Consortium. Funds allowed members of Marshall University's Chapter of the Society of Physics Students (SPS) to participate in the Great Lunar Expedition for Everyone (GLEE) workshop at the University of Colorado on Oct. 21-24 in Boulder, Colorado. Students A.J. Messinger and Peter Burbery, led by Assistant Professor Dr. Sean P. McBride of Marshall's Department of Physics, joined 19 other teams chosen from high schools, community colleges and universities across the country for this beta version of the hands-on workshop. The GLEE mission aims to deploy 500 LunaSats to the lunar surface of the moon to conduct local and distributed science missions. Featured in Marshall News (November 5, 2021).

(2021) **The Frederick W. Smith endowed Society of Physics Students Fund - $28,000 -** Helped to facilitate the endowment ($25,000 endowed and $3,000 for immediate use) from an external donor wishing to contribute

to SPS students and their mission. This was a surprisingly long and not straight forward process started in January of 2021 and not completed until June 2021. In the words of the donor, *"You deserve a tremendous amount of credit for finding a solution to a very knotty problem!"* and *"Thank you for all of your efforts in establishing this Society of Physics Student Fund which is now very close to realization. I hope your chairperson and the rest of the Physics Department know the extent of your effort, as well as all the effort you have put into the SPS chapter. Those efforts have led directly to the creation of this fund."*

(2021) Carrie Cockerham - $4000 - Summer Undergraduate Research Fellowship Experience. "Nanoparticle membranes for filtration of dyes & amoxicillin." Funded by the WV Higher Education Policy Commission, Science, Technology and Research Division.

(2021) Madison Morgan - $1750 – Sean P. McBride, Co-advisor, spring 2021 Undergraduate Creative Discovery and Research Award. "Removal of Amoxicillin from Water Using Membrane Filters Fabricated with Gold Nanoparticles". Primary advisor: Dr. Sungmin Youn, Engineering.

(2020) Jeremy McCloud - $3200 - Summer Undergraduate Research Fellowship Experience. "Rejection Comparison of Molecular Dyes Through Non-functionalized and Gold Nanoparticle Functionalized Polycarbonate Filters." Funded by the WV Higher Education Policy Commission, Science, Technology and Research Division.

(2020) Jon Keaton - $1000 - Awarded a NASA Student Fellowship. ($750 Stipend and $250 Supplies). "Mechanical properties of freely suspended self-assembled nanoparticle membranes." Funded by NASA West Virginia Space Grant Consortium Fellowship Program.

(2020) Jeremy McCloud - $1000 - Awarded a NASA Student Fellowship. ($750 Stipend and $250 Supplies). "Functionalizing Commercial Filters to Enhance Rejection of Molecular Dyes." Funded by NASA West Virginia Space Grant Consortium Fellowship Program.

(2020) Mckenzie Granata - $1000 - Awarded a NASA Student Fellowship. ($750 Stipend and $250 Supplies). "Applying Young's Modulus to Clinical Orthopedics and Sports Medicine." Funded by NASA West Virginia Space Grant Consortium Fellowship Program.

(2020) Mckenzie Granata - $250 - MU Research Committee Funding for supplies. "Applying Young's Modulus to Clinical Orthopedics and Sports Medicine."

NON-SCIENTIFIC PUBLICATIONS

(Publications for which I am the first author or worked with students who contributed to the articles, all published in SPS Observer)

(2024) Non-scientific Article published in the SPS Observer - "Teaching Students to make cameras from scratch" - Participants in formulation of the article where: myself as SPS advisor, SPS President AJ Messinger, and Kendra Redmond as Editor. Winter 2024 Issue, page 23.

(2021) Non-scientific Article published in the SPS Observer - "Coaching West Virginia's Top Science Olympiad Team for Nationals" - Participants in formulation of the article where: myself as SPS advisor and Co-State Director for WVSO, Dr. Sachiko McBride as Science Olympiad advisor and State Director of WVSO, and Jackie Sizemore SPS President, and Kendra Redmond as Editor. Fall 2021 Issue, pages 10-11.

(2021) Non-scientific Article published in the SPS Observer - "Faces of Physics: Campus Event Turned Virtual Speaker Series" - Participants in formulation of the article where: myself as SPS advisor, Ellie White and Jackie Sizemore as SPS officers, and Kendra Redmond as Editor. Spring 2021 Issue, pages 14-15.

(2019) Non-scientific Article published in the SPS Observer - "A Week of Physics "Phun" at Marshall University." **Sean P. McBride**, SPS Advisor, Jon Keaton, SPS Member, and Ryan Vincent, SPS Member, Marshall University. Winter 2019 Issue, page 28.

SUBMITTED/PLANNED PEER-REVIEWED RESEARCH PUBLICATIONS

(2027) **The Physics Teacher,** in progress, data collection & analysis completed. Planned submission S27/F27. "Young's modulus: How to cost accurately and cost effectively measure in introductory physics labs." Sachiko McBride, McKenzie Granata, and **Sean P. McBride (Marshall University)**

(2027) **Innovations in Education and Teaching International,** in progress, planned submission F27. "Herd Hours: A alternative to traditional office hours". **Sean P. McBride (Marshall University)** and Sachiko McBride.

PEER-REVIEWED RESEARCH PUBLICATIONS

(2025) **Sustainability, 17(17), 7696.** "Anionic Azo Dyes: Wastewater Pollutants as Functionalizing Agents for Porous Polycarbonate Membranes Aiding in Water Decolorization." A. J. Messinger, Isabella Mays, Brennon Craigo, Jeffrey Joering, and **Sean P. McBride (Marshall University)**.

(2022) **Micromachines, 13, 577.** "Azo-Dye-Functionalized Polycarbonate Membranes for Textile Dye and Nitrate Ion Removal." Carrie Cockerham, Ashton Caruthers, Jeremy McCloud, Laura M. Fortner, Sungmin Youn, and **Sean P. McBride (Marshall University).**

(2018) **Soft Matter, 14, 9107 - 9117.** "Conforming nanoparticle sheets to surfaces with Gaussian curvature." Noah Mitchell, Remington L. Carey, Jelani Hannah, Yifan Wang, Maria Cortes Ruiz, **Sean P. McBride (Marshall University),** Xiao-Min Lin, and Heinrich M. Jaeger.

(2017) **ACS Nano, *11* (8), pp 8026–8033.** "Thermo-Mechanical Response of Self-Assembled Nanoparticle Membranes." Yifan Wang, Henry Chan, Badri Narayanan, **Sean P. McBride (Marshall University),** Subramanian K. R. S. Sankaranarayanan, Xiao-Min Lin, and Heinrich M. Jaeger.

(2017) **Progress in Surface Science (Review Article), 92 (1), 1-39.** "Line tension and its influence on droplets and particles at surfaces." Bruce M Law, **Sean P. McBride (Marshall University)**, Jiang Wang, Haeng Sub Wi, Govind Paneru, Santigo Betelu, Bret Flanders, Hiroko Matsubara, Takanori Takiue, and Makoto Aratono.

(2016) **Nanotechnology, 27 (28), 285301.** "Hybrid nanostructures of well-organized arrays of colloidal quantum dots and a self-assembled monolayer of gold nanoparticles for enhanced fluorescence." Xiaoying Liu, **Sean P. McBride (Marshall University)**, Heinrich M. Jaeger, and Paul F. Nealey. *Additionally, this work was featured on nanotechweb.org, a community website from IOP Publishing, highlighting cutting edge research, July 1, 2016.*

(2015) **Nano Letters, 15 (10), pp 6732–6737.** "Strong Resistance to Bending Observed for nanoparticle Membranes." Yifan Wang, Jianhui Liao, **Sean P. McBride**, Efi Efrati, Xiao-Min Lin, and Heinrich M. Jaeger. *Additionally, this work was featured in an Argonne National Laboratory Press Release, October 8, 2015.*

(2015) **Faraday Discussions, 181, 365-381.** "Properties of self-assembled nanostructures: general discussion." Javier Reguera, Edward Malachosky, Matthew Martin, Moritz Tebbe, Bruce Law, Lucio Isa, Helmuth Moehwald, Yangwei Liu, Fernando Bresme, Dhanavel Ganeshan, Christopher Sorensen, Suvojit Ghosh, Andreas Fery, Petr Král, Asaph Widmer-Cooper, Christina Graf, Almudena Gallego, David Schiffrin, Brian Korgel, Gunadhor Okram, Subramanian Sankaranarayanan, Yifan Wang, Toshiharu Teranishi, K. Michael Salerno, **Sean McBride,** and Xiao-Min Lin.

(2015) **Faraday Discussions, 181, 325-338.** "Mechanical properties of self-assembled nanoparticle membranes: bending and stretching." Yifan Wang, Pongsakorn Kanjanaboos, **Sean P. McBride**, Edward Barry, Xiao-Min Lin, and Heinrich M. Jaeger. *Featured on Molecular Systems Design & Engineering Blog, as part of a*

volume of key molecular engineering research from across the Royal Society of Chemistry http://blogs.rsc.org/me/2015/09/22/the-emerging-field-of-molecular-engineering/*, September 22nd, 2015.*

(2014) Nature Communications, 5, Article Number: 5847. "Ion Transport Controlled by Nanoparticle-Functionalized Membranes." Edward Barry, **Sean McBride**, Heinrich Jaeger, and Xiao-Min Lin. *Additionally, the foundation of this work was featured on nanowerk.com, the leading nanotechnology portal, committed to educate, inform and inspire about nanotechnologies, nanoscience, and other emerging technologies:* http://www.nanowerk.com/news2/newsid=29442.php, *March 11th, 2013.*

(2014) Nano Letters, 14 (2), pp 826–830. "Fracture and Failure of Nanoparticle Monolayers and Multilayers." Yifan Wang, Pongsakorn Kanjanaboos, Edward Barry, **Sean McBride**, Xiao-Min Lin, and Heinrich M. Jaeger. *Featured on Homeland Defense and Security Information Analysis Center (HDIAC) website, . HDIAC is a Department of Defense (DoD) sponsored organization. The purpose of HDIAC is to leverage the best expertise from industry, other government agencies, and academia to solve the government's toughest scientific and technical problems*, *October 19th, 2015.*

(2012) Nanotechnology, 23, 455105. "Long reach cantilevers for sub-cellular force measurements." Govind Paneru, Prem S Thapa, **Sean P. McBride**, Adam Ramm, Bruce M Law and Bret N Flanders.

(2012) Physical Review Letters, 109, 196101. "Influence of Line Tension on Spherical Colloidal Particles at Liquid-Vapor Interfaces." **Sean P. McBride** and Bruce M. Law.

(2011) Applied Physics Letters, 99, 093702. "Forces at individual pseudopod-filament adhesive contacts." Govind Paneru, Prem S. Thapa**, Sean P. McBride**, David Moore-Nichols, Bruce M. Law, and Bret N. Flanders.

(2011) Journal of Physics: Condensed Matter, 23, 184108. "Wetting morphologies and their transitions in grooved substrates." Seemann, R., Brinkmann, M., Herminghaus, S., Khare, K., Law, B. M., **McBride, S. P.**, Kostourou, K., Wagner, B., Peschka, D., Muench, A., Baret, J.-C., Gurevich, E., Bommer, S., Herrmann, C., Michler, D. J.

(2010) Review of Scientific Instruments, 81, 113703. "Improved In Situ Spring Constant Calibration for Colloidal Probe Atomic Force Microscopy." **Sean P. McBride** and Bruce M. Law.

(2010) Langmuir, 26 (20), 15779-15785. "Hydrolysis of p-Nitrophenyl Esters Promoted by Semi-fluorinated Quaternary Ammonium Polymer Latexes and Films." Baljindar Kaur, **Sean P. McBride**, Abhijit Paul, and Warren T. Ford.

(2009) Physical Review E, 80, 060601. "Viscosity Dependent Liquid Slip at Molecularly Smooth Hydrophobic Surfaces." **Sean P. McBride** and Bruce M. Law.

(2007) Hyperfine Interactions, 177, 51-56. "Perturbed Angular Correlation Measurement of the Electric Field Gradient at 181Ta in ZrSiO4." H. Jaeger and **S. P. McBride**.

(2004) Hyperfine Interactions, 158, 267-271. "Perturbed Angular Correlation Study of Naturally Occurring Zircon with Very Small Impurity Concentrations." H. Jaeger, K.S. Pletzke, and **S. P. McBride**.

(2003) Proceedings of the ESA- IEEE Joint Meeting on Electrostatics, pgs. 734-738. "Initial Stages of Corona-Induced Wear of Copper Emitters." C. G. Noll, **S. P. McBride**, and J. M. Hetrick.

ORAL RESEARCH PRESENTATIONS at CONFERENCES & VARIOUS ACADEMIC VENUES

(Only talks and presentations for which I personally presented and made are listed, 2005 - Present)

(2025) Speaker: The Appalachian Section of AAPT fall Meeting. Frostburg University, MD**,** Nov. 7-8, 2025. "Herd Hours: Results Pre and Post Covid." **Sean P. McBride** and Sachiko McBride.

(2025) Speaker: MI-AAPT, SPS Zone 7, and Eastern Great Lakes Section of the American Physical Society Fall Meeting. Eastern Michigan University, MI**,** Oct 24-25, 2025. "Analysis of Anionic Azo-Dye-Functionalized Porous Polycarbonate Membranes for Water Decolorization." **Sean P. McBride,** A. J. Messinger, Isabella Mays, Brennon Craigo, and Jeffrey Joering.

(2024) Speaker: The Appalachian Section of AAPT fall Meeting, SPS Zone 7, and Eastern Great Lakes Section of the American Physical Society Fall Meeting. Marietta College, OH**,** Oct 17–18, 2024. "Anionic Azo Dye Functionalization of Polycarbonate Membranes for Water Purification." **Sean P. McBride,** Isabella Mays, Brennon Craigo, Jeffrey Joering, and A. J. Messinger.

(2023) Speaker: Pop-Up Clinic About Teaching (CATs), Herd Hours: An Alternative to Traditional Office Hours. May 30th, virtual, Session 1A - 8:30-9:00 am, MSC 2W22. "Herd Hours: An alternative to traditional office hours." **Sean P. McBride** and Sachiko McBride.

(2023) Speaker: iPED Regional Teaching Conference. May 3rd, face-to-face, Time: Session 1A - 8:30-9:00 am Location: MSC 2W22. "Herd Hours: An alternative to traditional office hours". **Sean P. McBride** and Sachiko McBride.

(2022) Speaker: The Appalachian Section of AAPT fall Meeting. Virtual, October 22nd, presentation scheduled between 2-2:15 pm. "Herd Hours: An alternative to traditional office hours". **Sean P. McBride** and Sachiko McBride.

(2022) Speaker: The Chesapeake Section of AAPT fall Meeting. Virtual, October 22nd, 3:30-3:45 pm. "Herd Hours: What is it and how does it work?". **Sean P. McBride** and Sachiko McBride.

(2022) Speaker: The Appalachian Section AAPT Spring Webinar Series. Virtual, April 27th, 7 -8:30 pm. "Herd Hours: An alternative to office hours". **Sean P. McBride** and Sachiko McBride.

(2022) Speaker: The 2022 American Physical Society March Meeting. McCormick Convention Center, Chicago, IL, March 14th-18th. "Azo Dye Functionalization of Polycarbonate Membranes for Water Purification". **Sean P. McBride**, Ashton Caruthers, Michele Fortner, and Carrie Cockerham.

(2021) Speaker: Engineer Research and Development Center of the US Army Corps of Engineers Workshop-Identifying management needs to predict, avoid and remediate harmful algal blooms in flowing waters. Marshall University, Huntington, WV, November 16, 17 & 18. "Functionalization of Polycarbonate Membranes for Molecular Dye Removal". Presentation given on the 18th in the John Spotts room Memorial Students Center. **Sean P. McBride**

(2021) Speaker: Eastern Great Lakes Section of the American Physical Society Fall Meeting - Virtual, November 12th-13th. "Azo Dye Functionalization of Polycarbonate Membranes for Molecular Dye Removal". **Sean P. McBride**, Ashton Caruthers, Michele Fortner, and Carrie Cockerham.

(2021) Speaker: Appalachian Section of the American Association of Physic Teachers Fall 2021 Meeting - Virtual, October 23rd, 10:00 am, 2021. "Azo Dye Functionalization of Polycarbonate Membranes". **Sean P. McBride**, Ashton Caruthers, Michele Fortner, and Carrie Cockerham.

(2021) Invited Speaker: IWSS Spring Workshop Series: Advances in West Virginia Water Research - Virtual, May 19th, 2:45 pm, 2021. "Purifying Water with Nanoparticle Functionalized Membranes", **Sean P. McBride.**

(2021) **Speaker: Spring 2021 Meeting of the Ohio-Region Sections of APS and SPS Zone 7 -** Virtual, April 9th-10th, 2021. "Nanoparticle Functionalization of Commercial Filtration Membranes for Water Purification", **Sean P. McBride**.

(2021) **Speaker - Physics Department Colloquium:** Marshall University, Virtual, April 1st, 4 - 5 pm. "Using Nanoparticle Functionalized Membranes to Reject Negative Species in Solution". **Sean P. McBride.**

(2019) **Speaker - Physics Department Colloquium:** Marshall University, Huntington, West Virginia, December 4th. "Student Progress on Porous Ultrathin Self-Assembled Nanoparticle Membranes for Water Purification at Marshall University" **Sean P. McBride.**

(2018) **Speaker - Physics Department Colloquium:** Marshall University, Huntington, West Virginia, November 14th. "Self-Assembled Nanoparticle Membranes for Water Filtration: A talk geared towards students & getting them interested in doing research." **Sean P. McBride.**

(2018) **Speaker - Physics Department Colloquium:** Marshall University, Huntington, West Virginia, February 7th. "The beginnings of nanoparticle-based filtration: Preliminary Results and Fabrication." **Sean P. McBride.**

(2017) **Speaker - Physics Department Colloquium:** Marshall University, Huntington, West Virginia, December 6th. "The beginnings of nanoparticle-based filtration" **Sean P. McBride.**

(2016) **Invited Speaker - Assistant Professor Faculty Position in Physics, Department of Physical Sciences, Arkansas Tech University, Russellville, Arkansas,** March 11th. "Investigating the behavior of sub-micron and nanometer sized particles at liquid-solid interfaces." **Sean P. McBride**.

(2016) **Invited Speaker - Assistant Professor Faculty Position in Physics, Miami University - Hamilton Campus, Hamilton, Ohio,** March 7th. "Topic: Electromagnetic Induction – Faraday's & Lenz's Laws" **Sean P. McBride.**

(2016) **Invited Speaker - Assistant Professor Faculty Position in Physics, Physics Department, Marshall University, Huntington, West Virginia,** February 22nd. "Nanoscale Research Projects at the Liquid –Solid Interface." **Sean P. McBride**.

(2015) **Invited Speaker – Condensed Matter Seminar, Physics Department, Kansas State University, Manhattan, Kansas,** November 20th. "Exploring the beginnings of nanoparticle-based filtration." **Sean P. McBride**.

(2015) **Invited Speaker - Assistant Professor Faculty Position in the Physics, Astronomy, and Materials Science Department, Missouri State University, Springfield, Missouri,** March 23rd. "Investigating how submicron and nanoscale particles interact at fluid interfaces using atomic force microscopy." **Sean P. McBride**.

(2015) **Invited Speaker - Assistant Professor Faculty Position in the Chemistry and Physics Department, Augusta University, (formerly, Georgia Regents University, formerly Augusta State University), Augusta, Georgia,** February 9th. "Proposed Research Projects Involving Undergraduate Students." **Sean P. McBride**.

(2011) **Speaker: Kansas Physical Chemistry Symposium, University of Kansas,** November 19th. "Determination of the line tension of isolated spherical particles at a liquid-vapor interface using atomic force microscopy." **Sean P. McBride** and Bruce M. Law.

(2010) **Invited Speaker: Faraday Discussion Graduate Research Seminar, Richmond Virginia,** April 9th-11th. "An Improved Determination of the Spring Constant & Slip Length Using Large Colloidal Probe Atomic Force Microscopy." **Sean P. McBride** and Bruce M. Law.

(2010) Speaker: March American Physical Society Meeting, Portland Oregon, March 15th-19th. "Colloidal Probe AFM: Improved Spring Constant Calibration." **Sean P. McBride** and Bruce M. Law.

(2009) Speaker: Materials Research Society Meeting, Boston Massachusetts, November 30th- December 4th. "Viscosity Dependent Slip Behavior at Molecularly Smooth Hydrophobic Surfaces." **Sean P. McBride** and Bruce M. Law.

(2009) Speaker: Kansas Physical Chemistry Symposium, University of Kansas, November 7th. "Correlation of Bulk Viscosity and Liquid Slip on Smooth Hydrophobic Surfaces." **Sean P. McBride** and Bruce M. Law.

(2005) Speaker: Joint Spring Meeting Ohio Section of APS and the Southern Ohio Section of AAPT, Dayton Ohio, April 8th-9th. "The Electrical Field Gradient at ^{181}Ta in $ZrSiO_4$ and $HfSiO_4$." **Sean P. McBride** and Herbert Jaeger.

CO-AUTHORED RESEARCH TALKS, POSTERS, & VARIOUS PRESENTATIONS

(2026) Co-authored Poster: "Characterization and Filtration of 0.1 µm Polycarbonate Filters" Aliyah ferry and **Sean P. McBride.** Research Experience for Undergraduates poster presentation. 624 Smith Hall, Huntington, WV, 25755. July 23rd.

(2025) Co-authored Poster: "The Impact of Pore Size and Pressure on Azo-Dye-Functionalization of Polycarbonate Membranes" Isabella Mays and **Sean P. McBride.** Research Experience for Undergraduates poster presentation. 612 Smith Hall, Huntington, WV, 25755. July 24th.

(2025) Co-authored Poster: "Polycarbonate Membrane Functionalization Using Direct Violet 1 and Direct Blue 53" Alexander Petula and **Sean P. McBride.** Research Experience for Undergraduates poster presentation. 612 Smith Hall, Huntington, WV, 25755. July 24th.

(2025) Co-authored Poster: "Filtration of Direct Yellow 4 and Direct Yellow 44: A Research Experience for Undergraduates" Claire Brown and **Sean P. McBride.** Research Experience for Undergraduates poster presentation. 612 Smith Hall, Huntington, WV, 25755. July 24th.

(2025) Co-authored Poster: "Filtration of Direct Red 2 and Direct Yellow 12: A Research Experience for Undergraduates." Brennon Craigo and **Sean P. McBride.** Presented at multiple venues below:

(1) MU Student Research and Creative Activities Symposium, Memorial Student Center, Don Morris Room, Huntington, WV, April 4th, 2025.
(2) Research Experience for Undergraduates poster presentation. 612 Smith Hall, Huntington, WV, 25755. July 25th, 2024.

(2025) Co-authored Talk: "Analysis of Anionic Azo-Dye-Functionalized Porous Polycarbonate Membranes." A. J. Messinger and **Sean P. McBride.** 277 Science Building, Huntington, WV, 25755. May 2nd.

(2024) Co-authored Poster: "Polycarbonate Membrane Functionalization Using Anionic Azo Dyes." Isabella Mays and **Sean P. McBride.** Research Experience for Undergraduates poster presentation. 612 Smith Hall, Huntington, WV, 25755. July 25th.

(2024) Co-authored Poster: "Filtration of Textile Dyes: A REU Focusing on Filtration of Direct Yellow 8." Jeffrey Joring and **Sean P. McBride.** Research Experience for Undergraduates poster presentation. 612 Smith Hall, Huntington, WV, 25755. July 25th.

(2024) Co-authored Talk: "Pore Fouling in Azo-Dye-Functionalization Membranes." Alan J. Messinger and **Sean P. McBride.** Spring Meeting of the American Physical Society, Eastern Great Lakes Section, Kettering University, Flint, Michigan, April 13th.

(2024) **Co-authored Poster:** "Pore Fouling in Azo-Dye-Functionalization Membranes." Alan J. Messinger and **Sean P. McBride.** Presented at multiple venues below:

(1) College of Science Research Expo, Science Building, Second Floor, 9-11am, Huntington, WV, 25755, April 19th.
(2) MU Student Research and Creative Activities Symposium, Memorial Student Center, Don Morris Room, Huntington, WV, April 4th.
(3) 20th annual West Virginia Undergraduate Research Day at the Capitol, WV Capitol Building, South Charleston, WV, 25305, February 22nd.

(2023) **Co-authored Talk:** "Using Anionic Azo Dyes to Functionalize Polycarbonate Membranes." Alan J. Messinger and **Sean P. McBride.** MU Physics Department Convocation Day, Science Building, 277, 3-5 pm, Huntington, WV, 25755, April 21st.

(2023) **Co-authored Poster:** "Functionalization of Polycarbonate Membranes with Anionic Azo Dyes." Presented at multiple venues below

(1) College of Science Research Expo, Science Building, Second Floor, 9-11am, Huntington, WV, 25755, April 21st.
(2) MU Physics Department Convocation Day, Science Building, 277, 3-5 pm, Huntington, WV, 25755, April 21st.
(3) MU Student Research and Creative Activities Symposium, Memorial Student Center, Don Morris Room, Huntington, WV, April 7th.
(4) 19th annual West Virginia Undergraduate Research Day at the Capitol, WV Capitol Building, South Charleston, WV, 25305, February 10th.

(2022) **Co-authored Talk:** "Functionalization of Polycarbonate Membranes with Anionic Azo Dyes." Fall 2022 Meeting of the APS Eastern Great Lake Section and the Michigan Section of AAPT: Pushing Boundaries in Physics and Education. October 21-22, 2022. Lawrence Technological University, Southfield, MI. Alan J. Messinger and **Sean P. McBride.**

(2022) **Co-authored Poster:** "Functionalization of Polycarbonate Membranes with Anionic Azo Dyes." Physics Congress 2022, Washington, D.C., October 6th-8th. Alan J. Messinger, Kimi Sturm, Abby Thompson, and **Sean P. McBride.**

(2022) **Co-authored Poster:** "Herd Hours: What makes it successful and how it was affected by covid." Marshall University Research & Creativity Symposium/University Research Day, Huntington, WV, April 19th. 2 - 3 pm. Andrew Prostor, Sachiko McBride, and **Sean P. McBride**.

(2022) **Co-authored Poster:** "Azo Dye Functionalization of Polycarbonate Commercial Filtration Membranes." College of Science Research Expo, Huntington, WV, April 8th. 9- 11 am. Ashton Caruthers, Michele Fortner, and **Sean P. McBride**.

(2022) **Co-authored Poster:** "Herd Hours: What makes it successful and how it was affected by covid." College of Science Research Expo, Huntington, WV, April 8th. 9- 11 am. Andrew Prostor, Sachiko McBride, and **Sean P. McBride**.

(2021) **Co-authored Talk:** "Rejection of Negative Dye Molecules Using Nanoparticle and Dye Functionalized Polycarbonate Membranes." Innovation in Appalachia Symposium: an undergraduate research Symposium. Virtual Poster Presentation talk. August 11th. Carrie Cockerham, Ashton Caruthers, Michele Fortner, and **Sean P. McBride**.

(2021) **Co-authored Talk:** "Nanoparticle Functionalized Membranes for Filtration of Azo Dyes & Amoxicillin." Summer Undergraduate Research Experience (SURE) Program. Student Final Presentations, Huntington, WV, BBSC 102 at 1 pm Friday, July 30th. Carrie Cockerham and **Sean P. McBride**.

(2021) **Co-authored Talk:** "Azo Dye Functionalization of Polycarbonate Commercial Filtration Membranes." Perservice and Early Career Research for Teachers (PERT) Program. Final Presentation and Reception Dinner, Huntington, WV, August 4th. Ashton Caruthers, Michele Fortner, and **Sean P. McBride**.

(2020) **Co-authored Poster Talk:** WVU's Virtual Summer Undergraduate Research Symposium - Virtual, July 23rd. "Rejection Comparison of Molecular Dyes Through Non-Functionalized and Gold Nanoparticle Functionalized Polycarbonate Filters**",** Jeremy McCloud and **Sean P. McBride.**

(2019) **Co-authored Talk:** "Size Selective Filtration Using Gold Nanoparticle Self-Assembled Monolayers on High-Flux Silica Nanoparticle Substrate". Ryan Vincent and **Sean P. McBride**. A-AAPT fall 2019 Meeting, November, 8th, 276 Science Building, Marshall University, WV, 25755.

(2019) **Co-authored Talk:** "Functionalizing Commercial Filtration Membranes to Enhance Rejection of Molecular Dyes." Perservice and Early Career Research for Teachers (PERT) Program. Final Presentation and Reception Dinner, Huntington, WV, August 14th. Ashton Caruthers, Kennedy Shoults, Rick Sharpe, and **Sean P. McBride.**

(2019) **Co-authored Poster:** "Self-Assembled Monolayers and Applications in Filtration." Ryan Vincent and **Sean P. McBride**. Presented at the multiple venues listed below:

(1) Appalachian Fresh Water Initiative, All -Hands Meeting, June 13th-14th, 9-5 pm & 9-1 pm, Weisberg Applied Engineering Complex, Marshall University, WV, 25755.

(2) College of Science Research Expo, April 26th. 10-12 pm, poster location - 3rd floor, Science Building. Marshall University, WV, 25755.

(3) Physics Department Convocation Day, April 26th, 3-5 pm, 277 Science Building, Marshall University, WV, 25755.

(2019) **Co-authored Talk:** "Developments towards a high-flux silica nanoparticle substrate for conforming self-assembled nanoparticle arrays." Ryan Vincent and **Sean P. McBride**. Physics Department Convocation Day, April 26th, 3-5 pm, 277 Science Building, Marshall University, WV, 25755.

(2019) **Co-authored Talk:** "Mechanics of self-assembled nanoparticle membranes using the finite element method." Arka P. Chattopadhyay and **Sean P. McBride**. Physics Department Convocation Day, April 26th, 3-5 pm, 277 Science Building, Marshall University, WV, 25755.

(2019) **Co-authored Talk:** "Size control and monodispersity of silica nanospheres and applications in nanofiltration." Ryan Vincent and **Sean P. McBride**. American Physical Society March Meeting, March 4th-8th, Boston, MA.

(2019) **Co-authored Poster:** "Conforming nanoparticle sheets to surfaces with Gaussian curvature." Noah P Mitchell, Remington L. Carey, Jelani Hannah, Yifan Wang, Maria Cortes Ruiz, **Sean P. McBride**, Xiao-Min Lin, and Heinrich M. Jaeger. Presented at the multiple venues listed below:

(1) Gordon Research Conference, Exploiting the Functionality of Soft Materials, January 28th-29th Ventura, CA.

(2) Gordon Research Seminar, Learning from Life: Adaptive Soft Materials and Complex Assembly Inspired by Living Systems, January 26th-27th, Ventura, CA.

(2018) Co-authored Poster-Presenter: Building Thriving Undergraduate Physics Programs Workshop, American Center for Physics College Park, Maryland, February 10-11th. "A Future for the Physics Program at Marshall University." Huong Nguyen, **Sean P. McBride**, Maria Hamilton.

(2015) Co-authored Talk: Nanoparticle Synthesis and Assembly: Faraday Discussion. "Mechanical properties of self-assembled nanoparticle membranes: stretching and bending". Yifan Wang, Pongsakorn Kanjanaboos, **Sean P. McBride**, Edward Barry, Xiao-Min Lin and Heinrich M. Jaeger. April 20-22nd, Advanced Photon Source at Argonne National Laboratory, Lemont, IL, 60439.

NON-RESEARCH BASED TALKS, POSTERS, CONFERENCES & VARIOUS PRESENTATIONS

(2026) John Marshall Leadership Fellows Program (JMLP) Presentations - Dr. Sean P. McBride was a co-author and co-presenter of a talk titled "A.I. Use at Marshall University, Setting the Tone with a WOW Experience." April 14th, 2026. 1:00 pm, Shawkey Dining Room, Marshall University. This presentation was the semester long efforts of a 6-person team focused on forming a recommendation to MU to improve student success at Marshall University. The recommendation focused on incorporating proper and ethical A.I. use and training into the MU Week of Welcome.

(2025) The 2025 Balanced Man Scholarship Banquet – Introduced the West Virginia Gamma Chapter of Sigma Phi Epsilon to an audience full of parents and guests of candidates in the running for the 2025 Balanced Man Scholarship. September 12th, 8 pm.

(2024) The 2024 Balanced Man Scholarship Banquet – Introduced the West Virginia Gamma Chapter of Sigma Phi Epsilon to an audience full of parents and guests of candidates in the running for the 2024 Balanced Man Scholarship. September 13th, 6:30-8 pm.

(2021) Speaker: MU Chapter of Sigma Pi Sigma (ΣΠΣ) 100th Anniversary Celebration - January 27th, 2022, 1 - 2 pm. "Happy 100th Birthday!! From the Marshall University Chapter of Society of Physics Students". https://www.marshall.edu/physics/files/2022-100-Years-Birthday-to-Sigma-Pi-Sigma.pdf. Provided pictures and a short video from the event to the National SPS Office for official use. **Sean P. McBride**.

(2021) Co-Speaker: Appalachian Section of the American Association of Physic Teachers Spring 2021 Meeting - Virtual, April, 15th, 7 - 9 pm, 2021. "The Connection Between the Physics Department and the Joan C. Edwards School of Medicine at Marshall University". Deborah Curry and **Sean P. McBride**.

(2021) Speaker: for Marshall University Career Services - Provided a pre-recorded talk and slides on, "What is Physics? What is it Like to Major in Physics at Marshall? What Can You Do with a Degree in Physics?". The talk and slides are meant to be distributed to students interested in being a physics major and/or having a career in Physics. Slides and talk made on 11/8. Slides sent on 11/17/21, recording resent 1/30/22. **Sean P. McBride**

(2021) Invited Speaker: PikeView High School, West Virginia. November 9th 3:20 pm - 4:20 pm. "What is Physics? What is it Like to Major in Physics at Marshall? What Can You Do with a Degree in Physics?". This was a virtual recruiting presentation given in conjunction with the Rubens Tube demonstration for Physics students. **Sean P. McBride**

(2020) Invited Speaker and Facilitator- Faculty Develop Workshop: Online Proctoring Methods, School of Pharmacy - Virtual, November, 5th, 2020. "Best Practices for Remote Proctoring". **Sean P. McBride** and Sachiko McBride.

(2020) Invited Keynote Speaker: 41st Annual Awards Ceremony - Marshall University, Huntington, West Virginia, January 24th. "Highlighting students' success gained from leadership roles and experiences in student organizations to the job market after Marshall". **Sean P. McBride.**

(2018) **Invited Speaker: Marshall University Career Services**, Marshall University, Huntington, West Virginia, March 29th. "What is Physics and What Can You Do with a Degree in Physics?" **Sean P. McBride**.

POSTERS

(Only first OR co-authored posters OR presentations for which I personally made, or significantly contributed to are listed, 2003 - Present)

(2022) **Created Poster:** "Marshall University Society of Physics Students." Physics Congress 2022 Breaking Boundaries Event, Washington, D.C., October 6th-8th. Alan J. Messinger and **Sean P. McBride.**

(2021) **Created Poster:** "Rejection of Negative Dye Molecules Using Nanoparticle and Dye Functionalized Polycarbonate Membranes." Innovation in Appalachia Symposium: an undergraduate research Symposium. Virtual Poster Presentation talk. August 11th. Carrie Cockerham, Ashton Caruthers, Michele Fortner, and **Sean P. McBride**.

(2021) **Created Poster:** "Azo Dye Functionalization of Polycarbonate Commercial Filtration Membranes." Perservice and Early Career Research for Teachers (PERT) Program. Final Presentation and Reception Dinner, Huntington, WV, August 4th. Ashton Caruthers, Michele Fortner, and **Sean P. McBride**.

(2021) **Created Poster:** IWSS Spring Workshop Series: Advances in West Virginia Water Research - Virtual, May 19th - June 2nd, 2021. "Functionalized Polycarbonate Commercial Filters for Water Purification," Jeremy McCloud, Ashton Caruthers, Kennedy Shoults, Rick Sharpe, **Sean P. McBride**

(2020) **Created Poster:** WVU's Virtual Summer Undergraduate Research Symposium - Virtual, July 23rd. "Rejection Comparison of Molecular Dyes Through Non-Functionalized and Gold Nanoparticle Functionalized Polycarbonate Filters", Jeremy McCloud and **Sean P. McBride.**

(2019) **Created Poster:** For PhysCON 2019. Downtown Providence, RI. November 14-16th, Rhode Island Convention Center. The poster emphasized the outreach and successes of the Society of Physics Students group at Marshall University. The poster was presented at the conference by Physics M.S. Student Ryan Vincent and Undergraduate physics student Jon Keaton. It was used as a recruiting tool for both the M.S. and undergraduate programs in Physics at Marshall.

(2019) **Created Poster:** For the 2019 A-AAPT Meeting Nov. 7th -9th at Marshall University. The poster emphasized Dr. Don Thomas, former NASA astronaut and a veteran of four Space Shuttle missions, who was the public keynote speaker for the conference. Thomas' talk, "Overcoming Obstacles and Reaching for the Stars," starts at 7 p.m. Thursday, Nov. 7, in Room 154 of Smith Hall and was free and open to the public.

(2019) **Created Poster:** Perservice and Early Career Research for Teachers (PERT) Program. Final Presentation and Reception Dinner, Huntington, WV, August 14th. "Functionalizing Commercial Filtration Membranes to Enhance Rejection of Molecular Dyes." Ashton Caruthers, Kennedy Shoults, Rick Sharpe, and **Sean P. McBride**

(2018) **Created Poster:** Society of Physics Students Zone 7 Meeting, Miami University, Oxford, Ohio, April 6-7th. "Society of Physics Students at Marshall University." **Sean P. McBride** and Emma Lockyer.

(2010) **Poster-Presenter:** 146th Faraday Discussion Meeting, Richmond Virginia, April 12th-14th. "An Improved Determination of the Spring Constant & Slip Length Using Large Colloidal Probe Atomic Force Microscopy." **Sean P. McBride** and Bruce M. Law.

(2003) **Poster-Presenter:** ESA-IEEE Joint Meeting on Electrostatics, June 24th-27th, Little Rock Arkansas. "Initial Stages of Corona-Induced Wear of Copper Emitters." C.G. Noll, **S. P. McBride**, and J.M. Hetrick.

MENTORED RESEARCH STUDENTS

(Excluding all those in my Ph.D. & Postdoctoral Supervisor's research groups from 2006 - 2015)

(Does include all REU students that I personally mentored to some varied extent)

(MU Sum 26) **Aliyah Ferry –** Undergradute student in Chemistry and Mathematics from Seattle University sponsored through a National Scienc Foundation REU program (NSF Award 2349289).

(MU Sum 25) **Claire Brown –** Undergradute student in mathematics from Appalachian State University sponsored through a National Scienc Foundation REU program (NSF Award 2349289).

(MU Sum 25) **Alex Petula –** Undergradute student in mathematics from The Pennsylvania State University sponsored through a National Scienc Foundation REU program (NSF Award 2349289).

(MU Sum 24 -Sum 25) **Isabella Mays –** Undergrated student focused on Biology and Chemistry curently at The College of William & Mary, transferring with an Associates of Science in Science from Piedmont Virginia Community College, sponsored through a National Scienc Foundation REU program (NSF – Award 2149891).

(MU Sum 22 – S25) **AJ Messinger –** Undergraduate physics major currently working towards BS degree/capstone student. Started the BS physics program in Fall 2021. AJ has earned numerous departmental awards multiple times including the Alva and Dixon Callihan Scholarship/John Marshall Scholarship, the A. Dixon Callihan, the Donald C. Martin and Ralph P. Hron Memorial Physics Scholarship, the Outstanding Undergraduate Award in both Physics, Mathematics, and Statistics, along with the Academic Achievement award from the physics department.

(MU Sum 24) **Jeffrey Joering –** Undergradute student in Physics from Northern Kentucky University sponsored through a National Scienc Foundation REU program (NSF Award 2349289).

(MU Sum 24) **Brennon Craigo –** Undergradute student in Mathematics at MU sponsored through a National Scienc Foundation REU program (NSF Award 2349289).

(MU S24) **Jaiden Skaff –** Undergrraduate student that is part of the First2 Netwrok and Spring 2024 Research Immersion (student comes with $800 for supply using MURC money).

(MU Sum 22) **Kimi Sturm –** First 2 Summer Immersion student. Student was transitioning from Parkersburg South High School, Parkersburg, WV, to marshall University for the start of Fall 2022, intended to pursue the mechaincal engineering program.

(MU Sum 22) **Abbigail Thompson –** First 2 Summer Immersion student. Student was transitioning from Sherman High School, Seth, WV, to Marshall University for the start of Fall 2022, intended to pursue a dual major in the Biological Science 9-Adult program and the Biological Science BS program.

(MU Sum 21)
(MU Sum 19) **Ashton Crauthers -** PERT Team Member for summer 2019 and 2021. Marshall University, Undergraduate Student Researcher. Graduated with a B.S. degree in Secondary Education in the College of Education and Professional Development, AoE in Chemistry. Went on to teaching Honors Chemistry at John T Hoggard High School, Wilmington, NC.

(MU Sum 21) **Laura Michele Fortner -** PERT Team Member for summer 2021. Conducted summer research as a rising senior from Spring Valley High School. Went on to the Mechanical Engineering Program at Marshall University.

(MU S21 - Summer 21) **Carrie Cockerham -** Marshall University, Undergraduate Student Researcher. At the time was working on her undergraduate degree in Engineering with an emphasis in Civil Engineering. Starting an internship with the Army Core of Engineers post spring 2022.

(MU S21) **Madison Morgan -** Marshall University, Undergraduate Student Researcher. Interned at Triton Construction Inc., MD and completed her undergraduate degree in Civil Engineering.

(MU F19 - Summer 20) **Jeremy McCloud -** Marshall University, Undergraduate Student Researcher. Completed his degree in Mechanical Engineering and became a Design Engineer, J.H. Fletcher & Company.

(MU F19 - S20) **Mckenzie Granata -** Marshall University, Undergraduate Student Researcher. Graduated in spring 2020 double majoring in in Biological Science with a concentration in Pre-Med and Health Science with a concentration in in Public Health. Completed a MS degree in Biomedical Research at the Joan C. Edwards School of Medicine and proceeded to a PhD program, Univ. of Tenn., Public Health - Clinical, epidemiology / disease control.

(MU S19 - S20) **Jon Keaton - Physics Undergraduate Capstone Student Researcher**, B.S. Physics degree from Marshall University in S20 and became an Advanced Software Engineer with Oktana in South Charelston, WV. He was awarded the A. Dixon Callihan, Donald C. Martin and Ralph P. Hron Memorial Physics Scholarship in spring 2019. I served as the Advisor on Mr. Keaton's research project titled "Mechanical Properties of Freely Suspended Self-Assembled Nanoparticle Membranes".

(MU Sum18 & S20) **Gregory Hart -** Marshall University, Undergraduate Student Researcher. Graduated with a B.S. degree in Mechanical Engineering. Completed course work at Esslingen University of Applied Sciences in Germany in the Master of Engineering in Design and Development in the Automotive and Mechanical Engineering program. Went on to become a Development Engineer with the Volvo Group in Gothenburg, Sweden.

(MU S19 - F19) **Arka Chattopadhyay -** Marshall University, Visiting Postdoctoral Scholar. Currently employed as an Assistant Research Professor in the Department of Civil Engineering, Marshall University Weisberg Applied Engineering Complex, Marshall University, WV, 25755. Dr. Chattopadhyay received his Ph.D. in Engineering Mechanics in September 2018 from Virginia Polytechnic Institute and State University, Blacksburg, VA, a M.S. degree in Mechanical Engineering in May 2011 from Kansas State University, Manhattan, KS, and a B.S. degree in Mechanical Engineering in May 2008 from Jawahar Lal Nehru Technological University, Hyderabad, India. Arka and I aim to collaborate on research projects with students when the opportunity presents itself.

(MU Sum18 - F19) **Ryan Vincent - Physics Graduate Research Student,** M.S. Physics degree from MU in fall 2019. I served as the Chairman on Mr. Vincent's Thesis Committee (11/11/2019). Mr. Vincent received B.S. education from Bloomsburg University of Pennsylvania in 2017. Ryan completed his thesis work in my lab. The title of his thesis is "Developments towards high-flux silica nanosphere substrates to support conforming self-assembled gold nanoparticle monolayers for applications in size-selective filtration". The following is an article including Mr. Vincent: Marshall graduate student works to connect research with a younger generation, West Virginia Science & Research, EPSCoR RII Track-1 News, 2019. He was first employed at DUST Identity, Framingham, MA upon graduation, moved on to be a Process Engineer at Radiant Nano, MA, and is now a Senior Materials Engineer at Irradiant Technologies in MA.

(MU S19) **Michael Moon -** Marshall University, Undergraduate Student Researcher. At the time was working on B.S. degree within the College of Education and Professional Development with a focus in secondary education. Awarded the Alva and Dixon Callihan Scholarship/John Marshall Scholarship & the Academic Achievement Award in spring 2019.

(MU Sum19) **Rick Sharpe -** Senior PERT Team Member for summer 2019 (Preservice and Early Career Research for Teachers). Non-traditional research student. At the time was an Environmental

Science Teacher, Science Department Chairman, Huntington High School, Huntington, WV, 25701. Now retired.

(MU Sum19) **Kennedy Shoults-** PERT Team Member for summer 2019 (Preservice and Early Career Research for Teachers). At the time of research, was an accomplished sophmore high school student researcher from Huntigton High, Huntington, WV, 25701. After research, moved on to Mountwest Community & Technical College.

(MU Sum18) **Taylor Phillips -** Marshall University, Undergraduate Student Researcher. Was working on B.S. degree in Biological Sciences at the time of research.

(MU Sum18) **Josh Pierson -** Summer Student Researcher. Received B.S. degree in Biology from West Virgina University in 2017 at the time of research.

(Uof C Sum15) **Maria Cortes -** University of Chicago, Materials Research Science and Engineering Center (MRSEC) summer Research Experience for Undergraduate (REU) student. Eventually became a s Ph.D. Student at KTH Royal Institute of Technology.

(KSU Sum11) **Catherine Fitch** - Kansas State University Research Experience for Undergraduate (REU) student. Has spent time as an Operations Engineer at Spaceflight Industries at Spaceflight Industries, Greater Seattle Area.

MENTORED GRADUATE & UNDERGRADUATE STUDENT GRADERS

(F26)	**Jayden Cadle**	Grader for PHY 211 University Physics I - Calculus Based
(F24-S26)	**(confidential)**	Grader for PHY 211 University Physics I - Calculus Based
(S25-F26)	**-**	Grader for PHY 201 College Physics I - Algebra Based
(S24)	**Dylan Lester**	Grader for PHY 204 General Physics II Laboratory
(S24)	**Josie Farris**	Grader for PHY 211 University Physics I - Calculus Based
(F23)	**-**	Grader for PHY 201 College Physics I - Algebra Based
(S23)	**James Britton**	Grader for PHY 211 University Physics I - Calculus Based
(F22)	**Jacob Lee**	Grader for PHY 201 College Physics I - Algebra Based
(F21, F22)	**Aidan Payton**	Grader for PHY 211 University Physics I - Calculus Based
(S22)	**-**	Grader for PHY 204 General Physics II Laboratory
(S22)	**Alaine Rutherford**	Grader for PHY 211 University Physics I - Calculus Based
(F21)	**Elijah Williamson**	Grader for PHY 202 General Physics I Laboratory
(S21)	**Dakota Thornton**	Grader for PHY 211 University Physics I - Calculus Based
(S21)	**Ian McKnight**	Grader for PHY 203 College Physics II - Algebra Based
(S20)	**Jon Keaton**	Grader for PHY 204 General Physics II Laboratory
(F19 - S20)	**Rae Stanley**	Grader for PHY 211 University Physics I - Calculus Based
(S20)	**-**	Grader for PHY 204 General Physics II Laboratory
(S20)	**-**	Grader for PHY 203 College Physics II - Algebra Based
(F19)	**-**	Grader for PHY 201 College Physics I - Algebra Based
(F17 - S19)	**Emily Sutherland**	Grader for PHY 211 University Physics I - Calculus Based
(S19)	**-**	Grader for PHY 203 College Physics II - Algebra Based
(S17)	**Dillon Buskirk**	Grader for PHY 211 University Physics I - Calculus Based

MENTORED JUNIOR FACULTY

(MU S17, F18 -S21) **Dr. Sachiko McBride -** Assistant Professor in the then Physics Department, Marshall University. As of fall 2021, Dr. Sachiko McBride entered a joint college position working between the College of Education and Professional Development and the College of Science at Marshall University starting fall 2021, then returned to College of Science full time in fall 2025 within the Department of Mathematics and Physics.

PROFESSIONAL DEVELOPMENT CONFERENCES, WORKSHOPS, MEETINGS, & EVENTS

(S26) **Digital Accessibility Hands-On Workshop -** Wednesday, January 7 from 12-1 pm, in Drinko 349.

(F25) **Steve Spangler's Workshop focusing on Engagement –** Exclusively for A-AAPT attendees as part of the Western Maryland STEM Festival, Saturday, 8 November, Frostburg State University, Center for Communication and Information Technology, room 397, 1-2pm.

(S25) **Critical Thinking Course Certification –** Hosted by the Center for Teaching and Learning and facilitated by Dr. Jamie Warne, Professor, Department of Political Science, Interim Assistant Director, Center for Teaching and Learning.

(F24) **Mathematics and Physics Colloquium -** Dr. Trung Truong, Department of Mathematics and Physics, Marshall University, SH 518, 20 November 2024 1:00PM–2:00PM. "Advances in Numerical Methods for Inverse Scattering."

(F24) **Integrating Computer Science and Data Science into Intro Physics with STEM coding Resources –** A-AAPT Workshop via EGLAPS F24 Meeting. Author Chris Orban, Ohio State University, 3:15 PM–4:30 PM, Saturday, October 19, 2024. Marietta College Room: RSC 107.

(F24) **Math, Physics, and Engineering Colloquium –** Prof. Anil Patnaik, Department of Engineering Physics at the Air Force Institute of Technology, Wright-Patterson Air Force Base, OH, 3 – 4 p.m. Tuesday, Sep. 24, in Science Building 473. "Future of Computing and Networking—Delving into the Quantum Weirdness."

(F24) **Trace Tuesday –** Hosted by The Center for Teaching and Learning, Shawkey Room, for inspirational ideas and thought-provoking discussion with award winning faculty, Tuesday, August 13th., 8:00 - 4:30 pm.

(S24) **Strategic Planning Workshops –** 1/24/2024 and 1/31/2024, 1-2 pm, presented by Dr. Ben Eng, Executive Director for the Center for Innovation and Entrepreneurship, 612 Smith Hall, Marshall University, Huntington, WV.

(S24) **NSF DUE Workshop (NSF Division of Undergraduate Education programs),** 1/17/2024, 12:00-1:00, sponsored by MURC, 4001 in the Arthur Weisberg Family Applied Engineering Complex, Marshall University, Huntington, WV.

(F23) **Cayuse SP Training Workshop,** 12/8/2023, 11:00AM - 1:00PM, virtual, hosted by MURC, Marshall University, Huntington, WV.

(F23) **Cayuse S2S Training Workshop,** 12/7/2023, 11:00AM - 1:00PM, virtual, hosted by MURC, Marshall University, Huntington, WV.

(F23) **Initiatives in graduate studies and theses presentation,** 9/6/2023, 1-2 pm, S 276, provided by Carl Mummert, Assistant Provost for Graduate Studies, and Gena Chattin, Research and ETD librarian, Marshall University, Huntington, WV.

(Sum 23) **Training for New Student Orientation** – 6/7/23, 1 pm. 2W22 MSC. Division of Student Affairs – LEAD Center, Marshall University, Huntington, WV.

(S23) **First2 Network Spring Conference** – sponsored by National Science Foundation. May 11-13th, Stonewall Resort, 940 Resort Drive Roanoke, WV 26447.

(S23) **Quality Matter Certification Training** –April 27th, 9:00 - 4:30 pm, rinko Library 349, Marshall University, Huntington, WV.

(F22) **Hyperspectral Imaging Training** – with Jamie Uertz with CytoViva. December 5th at 2:30, 1302 WAEC, Marshall University, Huntington, WV.

(F22) **Fall 2022 Meeting of the APS Eastern Great Lake Section and the Michigan Section of AAPT: Pushing Boundaries in Physics and Education.** October 21-22, 2022. Lawrence Technological University, Southfield, MI.

(F22) **Faculty Workshop series at the 2022 Physics Congress –** 3 workshops listed below sponsored by the American Association of Physics Teachers (AAPT)**.** Attended conference as an attendee and exhibitor to promote the graduate programs at Marshall. Washington, D.C., October 6th-8th.

I. Fostering Leadership in Your SPS Chapter
II. Building Strong Undergraduate Departments
III. Undergraduate Research and Your SPS Chapter

(F22) **Marshall University Faculty Design Thinking Training –** by iCenter**,** Thursday, September 22, 2022 10 - 12 pm. Experimental Theater - Joan C. Edwards Performing Arts Center, Marshall University, Huntington, WV, 25755.

(Sum 22) **National Science Foundation Virtual Grants Conference –** Online. June 6–10, 2022.

(Sum 22) **Training for New Student Orientation** – 6/2/22 5pm. Online training. Division of Student Affairs – LEAD Center.

(S22) **2020 Inquiring Pedagogies, 'Designing the Educational Experience for Growth, Innovation, and Renewal' - Spring iPED Regional Conference on Teaching and Learning.** Wednesday, May 4th, 8 am - 5 pm, Drinko Library, Marshall University, Huntington, WV, 25755.

(S22) **Marshall University Research & Creativity Symposium/University Research Day,** April 19th, 8 am - 4:45 pm. Sponsored by the Marshall University Research Corporation, WV Higher education Policy Commission, The Higher Education Policy Council, and the Erickson Foundation. Hosted by Marshall University.

(S22) **Spring 2022 Meeting of the Eastern Great Lakes Section of APS and SPS Zone 7,** Virtual, 4 - 5 pm, Zone 7 Meeting Kick-off Event, April 1st. Hosted by Youngstown State University in Youngstown, Ohio.

(S22) **Sigma Pi Sigma Induction Webinar -** Virtual, February 15th 4 - 5 pm. Hosted by Assistant Director of Sigma Pi Sigma, Andrew Zeidell.

(S22) **Mike Fritz Presents: Build A Better Team!** Wednesday, January 19 2022 at 6:50 - 8:30 pm. Don Morris Room, Memorial Student Center. Marshall University. Hosted by Office of Fraternity and Sorority Life.

(S22) **Mike Fritz Presents: GREAT Student Leaders Aren't Born They're Made!** Tuesday, January 18 2022 at 6:50 - 8:30 pm. Don Morris Room, Memorial Student Center. Marshall University. Hosted by Office of Fraternity and Sorority Life.

(F21) **Fall 2021 Meeting of the Eastern Great Lakes Section of APS and SPS Zone 7,** Virtual, 1:15-2:00 pm, Zone 7 Meeting Kick-off Event, November 12th. Hosted by the University of Mount Union in Alliance, Ohio.

(F21) **Greek Life New Member Summit** - Represented Faculty Advisors of student organizations and acquired information on the current state of Title IX environment in Greek Life community. Hosted by Corey Cunningham, Coordinator of Fraternity & Sorority Life, Division of Student Affairs – LEAD Center at Marshall University. Corbly Hall, November 6, 8:15 am - 2:45 pm.

(F21) **Great Lunar Expedition for Everyone (GLEE) workshop** - Students A.J. Messinger and Peter Burbery, led by Assistant Professor Dr. Sean P. McBride of Marshall's Department of Physics, joined 19 other teams chosen from high schools, community colleges and universities across the country for this beta version of the hands-on workshop. The GLEE mission aims to deploy 500 LunaSats to the lunar surface of the moon to conduct local and distributed science missions. University of Colorado, Oct. 21-24 in Boulder, Colorado. Featured in Marshall News (November 5, 2021).

(F21) **Engineer Research and Development Center of the US Army Corps of Engineer**s - Lunch and Learn Session - A internationally respected group of Geophysicists from CECS was organized by James Bryce, Engineering. Those from CECS presented their work as part of a lunch-and-learn, with interesting discussion following. Wednesday, September 15, from 11 am to 1 pm in Shawkey Dining Hall, Marshall University.

(F21) **Greek Life Leadership Mini-Conference -** A training opportunity for excellence in leadership hosted by Corey Cunningham, Coordinator of Fraternity & Sorority Life, Division of Student Affairs – LEAD Center at Marshall University. August 28th, 8:30 am to 4 pm.

(F21) **Advisor Network Breakfast participant-** I was looking forward to this event and scheduled time for it, showing up on time, but due to lack of communication and covid complications, the event was cancelled. August 26th, virtual, 7:30-9:30 am Led by Division of Student Affairs – LEAD Center, Marshall University.

(F21) **Fraternity and Sorority Life Faculty Advisor Meeting -** Many items discussed from Title IX issues, to help for chapters, to covid precautions, etc. August 18th, virtual, 7-8 pm. Led by Corey Cunningham, Coordinator of Fraternity & Sorority Life, Division of Student Affairs – LEAD Center.

(F21) **Physics Retreat** - Participated in a retreat organized by the Dean and the Associate Dean of the College of Science. The retreat was geared toward the betterment of the Physics Department. Was assigned or volunteered for tasks during the meeting all of which have been completed or waiting on the response of others. Marshall University, BBSC 2nd Floor Conference Room, August 18, 2021, 9:00 am.

(S21) **2021 Inquiring Pedagogies, 'The Great Educational Pivot: The Impact of Change & Change Agents on Teaching & Learning' - Spring iPED Regional Conference on Teaching and Learning.** Hosted on Zoom by the Center for Teaching and Learning, Marshall University, May 5th.

(S21) **Faculty Early Career Development (CAREER) Workshop -** Invited to attend by the Dean of COS. A workshop on how to prepare a proposal for such an award. Training by Dr. Kelvin Chu Vice President, TIG and former National Science Foundation (NSF) Program Officer. April 2, 2021, Virtual, 9:00- 11:30 am.

(S21) **IWSS Spring Workshop Series: Advances in West Virginia Water Research -** virtual workshop series, May 19th, 26th, and June 2nd, 2:30 - 5:00 pm, 2021.

(S21) **Web seminar: A Speciation-Based Solution Model Emerging from Solvent-Driven Aqueous Separations, Virtual,** featuring Dr. Aaron D. Wilson, an Idaho National Laboratory (INL) research chemist and chemical separations group supervisor, May 3 from 11 - 12 pm.

(S21) **Spring 2021 Meeting of the Ohio-Region Sections of APS and SPS Zone 7, Virtual,** SPS Zone 7 Kickoff**,** April 9th, 4 pm, 2021.

(S21) **The First2 Network: Faculty - Student Engagement working group -** virtual webinar to discuss with STEM faculty from higher education institutions across the state to learn new strategies to engage your STEM students. January 8 at 1 pm, 2021.

(S21) **Workshop on Chemical Safety and Covid Regulations in the context of Lab Safety.** Hosted by Mark Buchanan, Environmental Specialist & Chemical/Biological Safety Officer for Marshall University, January 7, 1 - 3 pm, 2021.

(S21) **Workshop on general biosafety, recombinant DNA regulations and rDNA safe practices, the NIH Guidelines, rDNA roles and responsibilities, and safe use of viral vectors.** Hosted by Don Primerano, Chair Institutional Biosafety Committee, Mark Buchanan, Environmental Specialist & Chemical/Biological Safety Officer for Marshall University, and Vincent Sollars IBC Member, January 6, 1 -4 pm, 2021.

(F20) **Appalachian Fresh Water Initiative, All -Hands Meeting**, virtual, Nov. 9th and 10th, 2 - 5 pm.

(F20) **Preparing your organization: COVID-19 Considerations & Guidelines.** Sponsored by Division of Student Affa**irs.** August 25th at 6:00 PM

(F20) **Collaborate Ultra Training using Blackboard -** Face-to-Face, provided to Faculty by Carl Mummert and Brian Morgan, Chair of Computer information Technology and Associate Dean of the College of Science respectively, Marshall University, August 7th, 2 - 4 pm.

(F20) **Microsoft Teams Training -** Face-to-Face, provided to Faculty by Brian Morgan, Associate Dean of the College of Science, Marshall University, August 6th, 3-4:30 pm.

(F20) **Respondus Lockdown Browser & Monitor Training -** virtual, provided to the physics department by Diana K. Adams, Instructional Designer, Design Center, Marshall University, August 5th, 2 pm.

(F20) **Student Accommodations and Updates for the fall 2020 semester.** Sponsored by the Center for Teaching & Learning, Faculty Advisory Committee for Students with Disabilities, and the Office of Disability Services. Presented by Greg Michaelson. 1:30 pm – 3:00 pm, August 4, 2020.

(F20) **7200F Scanning Electron Microscope Training Webinar for Marshall University,** July 27, 2020 1:30 PM - 4:00 PM, 2020.

(F20) **Smarter Proctoring Demonstration.** Virtual meeting hosted by Michael J. Bologna Solutions Consultant & Sales. July 27th, 11 am, 2021.

(S20) **Blackboard Collaborate Training.** Hosted by Brian Morgan at special request of the Physics Department Chair. March 16th, 2020. 10-10:50 am. Marshall University, WAEC 1104.

(S20) **Teaching in TECI Rooms with Technology Part 1.** Virtual. Hosted by the Center for Teaching and Learning. March 13th, 2020. 11-11:50 am. Marshall University.

(S20) **Teaching in TECI Rooms with Technology Part 2.** Virtual. Hosted by the Center for Teaching and Learning. March 13th, 2020. 12-12:50 pm. Marshall University.

(S20) **Teaching with Collaborative Tools.** Virtual. Hosted by the Center for Teaching and Learning. March 13th, 2020. 1-1:50 pm. Marshall University.

(S20) **Speed Training Multiple Mini Interviewing (MMI) Training Workshop** 01/31/2019 & 01/31/20. 2019,
(S19) 5:15 pm, room 2403G, Marshall Health, 400 Hal Greer Boulevard, & 2020 Friday morning January 31st @ 8:00 am, Center for Rural Health library, room 1414, Huntington, WV 25701.Training necessary to conduct interviews with prospective medical students in the accelerated BS/MD Program for the Joan C. Edwards School of Medicine.

(S20) **2020 Inquiring Pedagogies, 'Student Success: The Educational Imperative' - Spring iPED Regional Conference on Teaching and Learning.** Hosted on Zoom by the Center for Teaching and Learning, Marshall University, May 6th.

(F19) **Appalachian Section of the American Association of Physics Teachers Meeting.** November 7-9th, 2019, Marshall University, Huntington, WV, 25755

(F19) **(F18)**

r Training for Faculty Supervisors of Student Organizations. Friday, September 21st, 2018, 11am - 12:30 **Annual** pm, 2W22 Memorial Student Center & Thursday September 12th, 2019, 2W22 Memorial Student Center, **Adviso** Marshall University, Huntington, WV, 25755.

(F19) **Herdlink Training for Faculty Supervisors of Student Organizations.** Friday, September 5th, 2019, 5 - 6pm, 349 Drinko Library, Marshall University, Huntington, WV, 25755.

(F19) **2019 Inquiring Pedagogies - Fall Teaching Conference.** Community Engagement: Impacts on Communities, Scholars, and Students. Tuesday, August 20, 2019, 8 am - 6 pm, Weisberg Applied Engineering Complex, Marshall University, Huntington, WV, 25755.

(S19) **Appalachian Fresh Water Initiative, All -Hands Meeting**, June 13th-14th, 9-5 pm & 9-1 pm, Weisberg Applied Engineering Complex, Marshall University, WV, 25755.

(S19) **Faculty Early Career Development (CAREER) Workshop -** Invited to attend by the Dean of COS. A workshop on how to prepare a proposal for such an award. Training by Dr. Kelvin Chu Vice President, TIG and former National Science Foundation (NSF) Program Officer. April 26, 2019, Weisberg Applied Engineering Complex, Rooms 4001 and 4003 from 9:00-4:00.

(S19) **American Physical Society March Meeting**, March 4th-8th, Boston, MA. Attended conference to support my graduate student who, in the form of a talk, was presenting our research on size control of silica nanoparticles (acquired $600 INCO and $2100 in COS funding for the trip).

(S19) **QPR (Question, Persuade, and Refer) training.** QPR training focuses on suicide prevention strategies and comes with an official QPR certification. This was part of the SGA House of Representatives meeting, that occurred on Tuesday, February 5th, at 5:30 p.m. in room 2W22 of the Memorial Student Center. Training by Dr. Candace Layne of the Counseling Center.

(F18) **Grantsmanship 101/Finding Funding. Sponsored by MURC.** Thursday, November 8th, 2:00 – 12:45 pm, Applied Engineering Complex, 4001, Marshall University, Huntington, WV, 25755.

(F18) **Physics and Astronomy New Faculty Workshop,** Holiday Inn College Park, 10000 Baltimore Avenue, College Park, Maryland, 20740, MD, October 25th-28th. Conference attendance is by nomination only. Nominated by my Department Chair.

(F18) **Typical Proposal Components. Sponsored by MURC.** Wednesday, October 10th, 2018, 12:00 – 12:45 pm, Applied Engineering Complex, 4001, Marshall University, Huntington, WV, 25755.

(F18) **Grantsmanship 101/Proposal Basics. Sponsored by MURC.** Wednesday, October 3rd, 2018, 12:00 – 12:45 pm, Applied Engineering Complex, 4001, Marshall University, Huntington, WV, 25755.

(F18) **2018 Inquiring Pedagogies - Fall Teaching Conference.** Tuesday, August 14th, 2018, 8 am - 6 pm, Weisberg Applied Engineering Complex, Marshall University, Huntington, WV, 25755.

(Sum 18) **Aquavit Tutorial,** Appalachian Freshwater Initiative, Marshall University Visualization Center, Huntington, WV, August 2nd. "Aquavit tutorial/workshop."

(S18) **Building Thriving Undergraduate Physics Programs Workshop,** American Center for Physics College Park, Maryland, February 10-11th. "A Future for the Physics Program at Marshall University."

(F17) **Blackboard Upgrade Seminar.** November 27th, 3:00 - 4:00 pm, Drinko Library Room 402, Marshall University, Huntington, WV, 25755. An opportunity to contact/discuss with Tammy Jolley, Sales Representative for Backboard, the need for Grade Histograms be added to Data Analytics or Course Reports within Blackboard.

(F17) **Library Open House.** Wednesday, August 23rd, Drinko Library, Huntington, WV, 25755. Went with the intention of learning more about OCR software (optical Character Recognition software) for the assessment committee.

(F17) **2017 Inquiring Pedagogies - Fall Teaching Conference.** Tuesday, August 15th, 8 am - 6 pm, Weisberg Applied Engineering Complex, Marshall University, Huntington, WV, 25755.

(Sum 17) **Symposium on the Collective Behavior of Particles -** Saturday, June 3rd, 8 am - 5:30 pm, University of Chicago, Gordon Center for Integrative Science, (GCIS), Room 301/303, 929 E. 57th St., Chicago, IL 60637.

(S17) **Spring 2017 Copyright Workshop for Faculty and Staff.** Wednesday, April 26th, 1 - 2 pm, Drinko Library 402, Marshall University, Huntington, WV, 25755.

(S17) **Write Winning Grant Proposals with Dr. Robertson - 2017 NSF Grant Training from Grant Central.** April 3rd, 8:00 am - 4:30 pm, Memorial Student Center, Room BE5, Marshall University, Huntington, WV, 25755.

(S17) **Blackboard Spring Training Series – Grade Center 201.** March 14th, 2:00 - 3:00 pm, Drinko Library Room 349, Marshall University, Huntington, WV, 25755.

(S17) **MATLAB Seminar - Data Analysis and Visualization in MATLAB.** Tuesday March 7th at 2:00 pm. Room 2W22 MSC. Marshall University, Huntington, WV, 25755.

(S17) **Workshop for 2017 grant applications to the West Virginia Space Grant Consortium.** Thursday February 16th at 3:30 pm. Room 102 BBSC. Marshall University, Huntington, WV, 25755.

(S17) **Blackboard Spring Training Series – Student Engagement.** January 24th, 1:00 - 2:00 pm, Drinko Library Room 349, Marshall University, Huntington, WV, 25755.

(S17) **Blackboard Spring Training Series – Introduction Session.** January 19th, 2:00 - 3:00 pm, Drinko Library Room 349, Marshall University, Huntington, WV, 25755.

(F16) **Banner Basic Purchasing Training.** One-on-one training with Tracey Brown-Dolinski, purchasing agent. December 13th, 1 - 3 pm, 125 Old Main, Purchasing Office, Marshall University, Huntington, WV, 25755.

(F16) **Technology Round Up for New Faculty.** December 7th, 2:00 - 2:50 pm, Drinko Library Room 349, Marshall University, Huntington, WV, 25755.

(F16) **Strategic Planning Committee Input Session for Faculty.** November 30th, Memorial Student Center, Room BE5, Marshall University, Huntington, WV, 25755.

(F16) ***(4-events)*** **Teaching with Technology Workshop Series.** September 20th, October 18th, November 8th, and December 1st, Drinko Library Room 349, Marshall University, Huntington, WV, 25755.

(F16) **Banner Basic Navigation Training.** October 25th, 9:30 - 11am, Drinko Library Room 349, Marshall University, Huntington, WV, 25755.

(F16) ***(5-events)*** **Fall 2016 Marshall University Resource Cooperation (MURC) Workshop Series.** September 27th, October 4th, 11th, 18th, 25th, on Tuesdays from 12 - 12:45 pm, Weisberg Applied Engineering Complex 4001, Marshall University, Huntington, WV, 25755.

(F16) **Digital Measures Workshop** (instructed by Mindy Allenger, Interim Assistant Director, Center for Teaching & Learning). Tuesday, September 13th, 9 - 10 am, Drinko Library 138, Marshall University, Huntington, WV, 25755.

(F16) **Fall 2016 Copyright Workshop, Copyright Compliance for the MU Classroom.** Thursday, September 1st, 1 - 2 pm, Drinko Library 402, Marshall University, Huntington, WV, 25755.

(F16) **2016 Inquiring Pedagogies - Fall Teaching Conference.** Tuesday, August 16th, 8 am - 6 pm, Weisberg Applied Engineering Complex, Marshall University, Huntington, WV, 25755.

(F16) **New Faculty Orientation – Marshall University.** Monday, August 15th, 8:15 am - 4 pm, Weisberg Applied Engineering Complex, Marshall University, Huntington, WV, 25755.

(Sum 12) **Membrane Technology Workshop – Energy Efficiency & Renewable Energy, sponsored by The Department of Energy**. Wednesday, July 24th, 8 am - 5 pm, Hilton Rosemont Hotel, Chicago O'Hare International Airport, 5550 N River Rd., Rosemont, IL 60018.

PEER REVIEWER/REFEREE FOR JOURNALS

(S23 – S26) **Peer Reviewer/Referee for *The Physics Teacher* -** *"The Physics Teacher* publishes peer-reviewed papers on the teaching of introductory physics and on topics such as contemporary physics, applied physics, and the history of physics. Dedicated to strengthening the teaching of introductory physics at all levels, including secondary schools, colleges, and universities, *The Physics Teacher* provides peer-reviewed content and materials to be used in classrooms and instructional laboratories*."* Last active S26.

(S26) **Peer Reviewer/Referee for *Applied Nanoscience* – "***Applied Nanoscience* is a hybrid journal focused on the advanced study and application of nanotechnologies across diverse fields." Last active S26.

(S23 – S25) **Peer Reviewer/Referee for the journal *Materials* - "***Materials* provides a forum for publishing papers which advance the in-depth understanding of the relationship between structure, properties, and functions of all kinds of materials. It covers all aspects of materials science and engineering including synthesis, structure, mechanical, chemical, electronic, magnetic, and optical properties, as well as their various applications [peer-reviewed open access journal]." Last active S25.

(S23) **Peer Reviewer/Referee for the journal *Membranes* - "***Membranes* is an international, peer-reviewed, open access journal…[that] covers the broad aspects of the science and technology of both biological and non-biological membranes." "The journal covers broad science- and technology-related aspects of both biological and non-biological membranes." Last active S23.

(S23) **Peer Reviewer/Referee for the journal *Water* - "***Water* is an international and interdisciplinary open-access journal covering all aspects of water, including water science, technology, management and governance." "*Water* a peer-reviewed, open access journal on water science and technology, including the ecology and management of water resources." Last active S23.

(F22) **Peer Reviewer/Referee for the journal *International Journal of Molecular Sciences* - "***International Journal of Molecular Sciences* is an international, peer-reviewed, open access journal providing an advanced forum for biochemistry, molecular and cell biology, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry…" Last active F22.

(S20) **Peer Reviewer/Referee for the journal *Advance Materials Technology* - "***Advance Materials Technology* is the new home for all technology-related materials applications research, with particular focus on advanced device design, fabrication and integration, as well as new technologies based on novel materials. It bridges the gap between fundamental laboratory research and industry." Last active S20.

(S19 – S20) **Peer Reviewer/Referee for the journal *ChemistrySelect* -** *ChemistrySelect* is the latest journal from ChemPubSoc Europe (www.chempubsoc.eu), an organization of 16 continental European chemical

societies, and complements the existing titles published in collaboration with Wiley-VCH. I have reviewed multiple articles with sincere thanks: "We want to personally thank you for your excellent and very helpful report on the paper submitted to our journal *ChemistrySelect*. We appreciate you took your time to prepare a detailed and thorough report, which is a rare case." ~ Associate Editor *ChemistrySelect*. Last Active S20.

SERVICE & VOLUNTEER EXPERIENCE

(F25- Present) **COS Gateway Course Innovation Working Group –** Member, Mathematics, and Physics Department

(F25 - Present) **Invited - Local organizing committee member for the International Conference on Statistical Distributions and Application Conference (ICOSDA 2026).**

(F25 - Present) **Faculty Attendance Policy Committee (COS=Fac-10) –** Requested by the Mathematics and Physics Chair to be on this committee to represent the faculty.

(S25 - Present) **Undergraduate Committee –** Member, Mathematics, and Physics Department

(S25 - Present) **Advanced Laboratory Committee** –Member, Mathematics, and Physics Department

(S25 - Present) **Publicity Coordinator for Physics program** –Mathematics, and Physics Department

(S25 - Present) **Physics 1 Course Committee** – Committee Chair, Mathematics, and Physics Department

(F23 - Present) **Recruitment & outreach events I have participated in and/or help plan/organize:**

- 07/06/2026 Health Sciences and Technology Academy Demo Show
- 06/09/2026 HCM KidsFest Science Demo
- 04/22/2026 College of Science High School Science Day
- 04/11/2026 Green and White Day
- 03/28/2026 SPS Hovercraft at Family Science fun Day
- 03/13/2026 Pie Your Professor Day
- 11/3/2025 Highlawn Elementary School Physics Demos
- 10/30/2025 Huntington Middle School 2025 Pumpkin Drop
- 10/30/2025 MUAC, SPS, and Pi Mu Epsilon Halloween Party
- 10/21/2025 HMS 6th Grade Physics Lecture on Momentum and Impulse
- 08/09/2025 MUAC Stargazing in the Park, Barboursville
- 07/08/2025 PROPEL Youth Enrichment Camp @YMCA – Round 2
- 07/07/2025 Health Sciences and Technology Academy Demo Show
- 06/18/2025 Highlawn Elementary School Physics Demos
- 06/17/2025 PROPEL Youth Enrichment Camp @YMCA – Round 1
- 04/15/2025 Our Lady of Fatima Parish School Physics and Astronomy Outreach
- 04/12/2025 Green and White Day
- 04/07/2025 College of Science High School Science Day
- 02/01/2025 Green and White Day
- 11/09/2024 61st Annual International Festival
- 11/4/2024 Lincoln County High School Recruiting Trip
- 10/30/2024 MUAC, SPS, and Pi Mu Epsilon Halloween Party
- 10/30/2024 Huntington Middle School 2024 Pumpkin Drop
- 10/24/2024 HMS 6th Grade Physics Lecture on Momentum and Impulse
- 09/28/2024 Math and Physics faculty at Green and White Day
- 07/09/2024 Health Sciences and Technology Academy Demo Show

- 06/21/2024 MUAC Sky Viewing at the "Movie in the Park" series, Barboursville
- 06/16/2024 SPS and MUAC Activities at Highlawn Elementary School
- 06/13/2024 Upward Bound Rollercoaster Workshop
- 04/08/2024 The April 8th 2024 Eclipse
- 04/06/2024 SPS at Green and White Day
- 03/14/2024 Pi a Professor Day for Biomedical Engineering Society
- 03/05/204 Pinhole Cameras at Highlawn Elementary
- 02/03/2024 SPS at Green and White Day
- 02/03/2024 Math and Physics faculty at Green and White Day
- 01/26/2024 MUAC Star Gazing
- 11/18/2023 TRIO 2nd Annual STEAM Day
- 11/17/2023 Explorer Academy
- 11/11/2023 MU GWD and Clay Centers's Clay2Go STEAM mobile Outreach Exhibit
- 11/07/2023 Chapmanville Motor Workshop
- 10/30/2023 HMS Pumpkin Drop
- 10/28/2023 60th Annual International Festival
- 10/06/2023 MUAMU Pumpkin Drop
- 09/23/2023 MUAC Star Gazing
- 08/21/2023 Rec Fest Summer 2023
- 06/13-14/2023 New Student Orientation
- 07/12/2023 2" LX200 Schmidt-Cassegrain Telescope Donation
- 7/12/2023 Science of Sound Health Sciences and Technology Academy Workshop
- 06/24/2023 West Virginia GEAR UP
- 07/13-14/2023 New Student Orientation

(S22 - Present) **Marshall University Astronomy Club Faculty Advisor –** The club always seeks to make regular star gazing events open to students and members of the community. In fall 2022 and spring 2023, multiple telescopes were donated to the group.

(S21 - Present) **Sigma Phi Epsilon, ΣΦE, West Virginia Gamma Chapter, Faculty Advisor - "**SigEp is redefining fraternity on college campuses across the country. We complement a man's education by delivering a premier student experience in one of the most formative times of his life. Through SigEp, men strengthen their character, build leadership and interpersonal skills, and learn to develop healthy, lifelong relationships that are essential to a successful and fulfilling life." https://sigep.org/about/mission-statement

(S21 - Present) **Physics Program Convocation Day** – Nearly every spring semester. Always present to encourage, support, and ask questions of students in the program that are presenting their research and receiving awards. I am also the program photographer for the event. In 2021, a graduate student working on an independent study research project with me presented her project, "Teaching Quantum Key Distribution Through Simulation". Similarly, each semester my undergraduate (2023), graduate (2019, 2021), and visiting postdoctoral scholars (2019) have presented their work. When I have been asked, I have also presented brief talks on my area of research (2022). All my MU research students post 2020 have seized this opportunity to present when possible. 277 Science Building, Marshall University, WV, 25755.

(F19 - Present) **Faculty Senator Representing the College of Science -** Invited by a high-ranking member of the Faculty Senate and encouraged by colleagues to accept the nomination to fill a vacant spot in the faculty senate. To date, I have attended every meeting, excluding one when informed I had contracted pneumonia and was nearly bed ridden.

(F19 - Present) **Membership and Recruitment Chair for the Regional Section of A-AAPT -** As the Membership and Recruitment Chair the Appalachian Section of the American Association of Physics Teachers, I

aim to increase participation at all levels (from students, high school teachers, 2-year colleges, and 4-year universities) for annual meetings.

(F18 - Present) **West Virginia Co-State Director of Science Olympiad & MU Science Olympiad Committee Member -** "Founded in 1984, Science Olympiad is one of the premier science competitions in the nation, providing rigorous, standards-based challenges to nearly 8,000 teams in all 50 states. We host 450 tournaments annually on college campuses and hold and professional development workshops that showcase innovative science, technology, engineering and math (STEM)." - https://www.soinc.org/. In this role as Co-State Director & MU SO Committee member I aim to assist in organizing the West Virginia State Championship Science Olympiad held every spring at Marshall University and participate as an event supervisor and table for the physics program.

(F17 - Present) **Society of Physics Students (SPS) & Sigma Pi Sigma (ΣΠΣ) Faculty Advisor, Physics Department/Program, Marshall University -** I guide SPS members in preforming community outreach, fundraisers, and assist in build competitions, or any other activities they wish to participate in: https://www.marshall.edu/physics/society-of-physics-students/. I also invite students to help faculty with their outreach activities when needed. I took over the group when it had one student left and $84 in fall 2017. The group has grown to see attendance numbers as high as 20+ at meetings and has saved over $2,000 at times. Fundraising matching at times was negotiated with the Physics Department. I have helped the group secure more than $10,000 dollars in external funding for their speaker series, Science Olympiad Coaching, GLEE trips, etc. and helped facilitate an endowment of $25,000 for the group with an additional $3000 from an external donor. The main objectives of SPS at Marshall are to encourage interested students in the sciences, physics in particularly, and to develop and grow in their knowledge base of science and physics related research. The aim is for students to develop a strong collegiate bond between faculty and students, promote public interest and awareness in science in general, specifically physics, and recognize high levels of student achievements by means of a Sigma Pi Sigma induction (a national physics honor society).

4 physics majors were inducted into Sigma Pi Sigma in fall 2018, 4 more were inducted in Fall 2019, 3 were inducted in spring 2021, 1 student was inducted in spring 2022 and 3 students were inducted in spring 2025. The National Council for SPS has awarded the Marshall University chapter of SPS as a Distinguished Chapter for the 2017-2018 and 2018-2019 academic years and an Outstanding Chapter for all years between 2019 - 2020 through 2024-2025 academic years. In fall 2018, 2019, and 2021 they received $500 in SGA funding each semester, as well as the national Future Faces Award sponsored by SPS through the American Institute of Physics. In Spring 2020 they were recognized as the Most Improved Student Organization on Marshall's Campus. At points in the past and currently I have maintained the group's HERDlink account, the SPS website, along with taking care of Communication Office needs for fliers/advertisements/recruitment/outreach.

(F17 - Present) **Webmaster for The MU Chapter of the Society of Physics Students Page -** Keep information up to date on the homepage of Marshall University Chapter of the Society of Physics Students

(S17 - Present) **HERD Hours -** is a study session that I have founded to help foster a productive learning environment and enhance the sense of community between students and faculty. I can only hope more departments seek to adopt HERD Hours and it becomes a common theme throughout the university. Click here for more information on HERD Hours. As indicated for my teaching PHY 211 this has been an enormously successful program during non-covid times.

(S17 - Present) **Volunteered to Represent the Physics Department in Full Faculty Academic Regalia for the student graduation ceremony** – Marshall University. Have gone to every graduation my schedule permits excluding times during covid (currently alternate yearly with wife who also is a professor). Started going face to face again in Fall 2021 as an emergency Marshal for the College of Science and as faculty.

(F16 - Present) **"Green & White Day"** - Primary Physics program representative for COS – Focus on Student Recruitment - Marshall University. **29 events attended**: *10/29 in 2016; 2/25, 4/1, 9/23, & 11/10 in 2017; 10/12, 11/12, 12/1 in 2018; 4/9, 11/11 in 2019, 2/17 in 2020, 4/16, 11/11 in 2021, 2/11, 4/2 9/17, 10/15 in 2022, and 2/4, 4/1, 9/23, 10/21, and 11/11 in 2023, 2/3, 4/6, 9/28 in 2024, 2/1 and 4/12 in 2025, and 4/11 in 2026*. Represented the Physics Department for the first ever virtual Green and White Day due to Covid 19 on 6/17 in 2020 and helped supply some of the background video feed content for the departmental promotional video used on October 9th 2020. Prepared dedicated physics department tours for prospective students on 10/15 and 11/12 in 2022. Responsible for providing demonstrations, promotional products, career information, and a liaison between prospective students/parents and the Physics Department & College of Science. Prior to the merger with the Mathematics Department, in the event that I could not attend G & W Day fully due to teaching or other prior commitments, I arranged for other faculty members to take my place if I am unavailable or needed assistance (substitutes/assistants arranged for 12/1 in 2017, 2/19 & 4/16 in 2018, 2/18 in 2019, 4/17, 11/12 in 2021, and 10/15, 11/11 & 11/12 in 2022, and 2/4 & 4/1 in 2023). Post merger with mathematics in fall 2023, the new department chair has taken on the role of finding volunteers for GWDs.

(F16 - Present) **Course Catalog Edits -** Since fall of 2016, I have taken every opportunity given to me to ensure that all information in the print version of the undergraduate catalog matches the desired program information. All corrections submitted were not accepted each year for unknown reasons and were resubmitted many times. As of the 2019-2020 academic year, after repeated submissions, I am happy to report that nearly all corrections that I had asked for since fall 2016 had been included (at this point, it should just be just more or less maintaining the information in the catalog for future changes and additions). Since spring 2019, I have helped to review the Graduate Catalog, changes and suggestions have appeared in the May 2022 second draft. Unfortunately, with the transition to finally having an online undergraduate catalog came numerous new problems with the course catalog, which have been reported, but not discovered in detail. Material for the new digital catalog was not taken from the correct latest print version, but instead another source, which was outdated.

(F16 - Present) **Marshall University General Faculty Meetings and College of Science Dean's Meeting**s - Have attended all possible meetings, unless they have occurred when teaching or other prior commitments were present. College of Science Dean's Meetings have ended prior to spring 2020, but were revived in Fall 2021 and continued by interim Dean Brian Morgan, and further restarted by the new Dean in Spring 2024.

(03/28/2026) **Marshall Bound -** Exploring Sound Waves with a Ruben Tube - Fire and Sound | Science Building, Room 179. Students will explore physics through a standing wave demonstration with a stroboscope and "see" sound waves with a Ruben Tube's flames.

(03/19/2026) **Abstract Reviewer –** for the 2026 for the University Research & Creativity Symposium.

(03/17/2026) **Welcome Video created for Students –** made for College Enrollment Coordinator, Department of Recruitment.

(03/07/2026) **Science Olympiad - Event Supervisor for Division C. Hovercraft Event -** Supervised and scored the Hovercraft event for the statewide tournament. Hosted face-to-face at Marshall University, Huntington, WV, 25755.

(06/11/2025) **Medical Physics AoE** - Approval granted. Over the course of several months, I had worked with students, advisors, and administrators to redesign the Medical physics AoE to be attractive and beneficial for students and feasible in four years.

(05/02/2025) **Capstone Committee Chair –** AJ Messinger, Physics, "Analysis of Anionic Azo-Dye-Functionalization Membranes". Presentation 4 - 6 pm. Science building 277.

(03/01/2025) **Science Olympiad - Event Supervisor for Division C. Trajectory Event -** Supervised and scored the Trajectory event for the statewide tournament. Hosted face-to-face at Marshall University, Huntington, WV, 25755.

(F24-S25) **PHY 103 – Mechanics of the Human Body** - Initiated the development of this new CT designated course. Submitted paperwork in Fall 2024. This is a 100 introductory level class focuses on the physics of the human body.

(F24-S25) **Shared Governance Committee (specifically on the Onboarding Task Force portion) –** Goal will be to create onboarding materials to of shared governance for new faculty, students, staff, identify venues to share onboarding materials, and give presentations to relevant groups.

(5/24 – 7/25) **REU Student Research Mentor -** Filled in for an Engineering faculty member (NSF – Award 2149891).

(S23 – S25) **Chair of the PHY 201/211 Course Committee –** Responsible for overseeing the direction, creation, and execution of the final common exams in these courses. Currently members of this committee do not have control of the textbook used for these courses as these courses are the first courses in sequence courses, thus require input from more non-members that teach the second sequence courses. Committee ended with Math/physics bylaws S25.

(10/19/2024) **Session Chair** - Eastern Great Lakes Section of the American Physical Society 2024 Fall Meeting, 9:30 am - 11:06 am, Applied Physics.

(2020 – F24) **The Faces of Physics Speaker Series -** Started November 2020 and I have perpetually encouraged students to keep it running . Ellie White initially was a driving force in establishing this speaker's series. Each semester I help push the students to get started and keep them on track for the series to run smoothly. The students initially have done an amazing job organizing the series and quickly become self-sufficient finding speakers and running the need technology. Hopefully this continues each academic year. The Faces of Physics Speaker Series is hosted and sponsored by Marshall University's Society of Physics Students and has been co-sponsored by the American Institute of Physics in the past. NASA West Virginia Space Grant Consortium and the Society of Physics Students Fund also have provided funding. Each academic month a guest speaker gives a virtual 30–60-minute talk on their current research, followed by a Q&A session with attendees. The talks are held virtually through YouTube Live and are free and open to the public, and are appropriate for all ages. The goal of the event is to highlight the work of researchers from underrepresented groups to promote inclusion and inspire the next generation of scientists to see a place for themselves in the exciting field of physics. Starting in Spring 2024 efforts have moved to rebrand the speaker series as **The Faces of STEM Speaker Series** to be more inclusive and better represent the interests of the diverse SPS group members. The relaunch is expected in fall 2024/spring 2025. The MUAC club has been inspired by the speaker's series and will be developing their own in a similar format.

(F20 – S24) **Faculty Senator Liaison and Voting Member for the Academic Planning Committee -** Responsible for reporting out the events of the APC meetings to the full Faculty Senate when requested. Responsible for evaluation of an Intent to Plan documents and 5-year program reviews. Met on 11/10 in 2020, 3/2, 10/26, 11/4, 11/9, 11/15 in 2021, and 9/29, 11/3 in 2022, and 2/2,10/31, 11/2, and 12/12 in 2023.

(F23 – S24) **Math Search Committee –** The charge of this committee was to present to the Mathematics and Physics Department faculty and the Dean of the College of Science the most appropriate candidates from a large pool of applicants for three open positions within the department.

(02/24/2024) **Admitted Student Social -** Welcomed newly admitted students. Also tried to recruit students to the College of Science. This 'Class of 2028 Reception' for admitted students hosted in the Arthur Weisberg Family Applied Engineering Complex on Saturday, February 24th, from 2:00 – 3:30 p.m.

(2023-2024) **Reviewer for the National Science Foundation**

(03/02/2024) **Science Olympiad - Event Supervisor for Division C. Trajectory Event -** Supervised and scored the Trajectory event for the statewide tournament. Hosted face-to-face at Marshall University, Huntington, WV, 25755.

(12/01/2023) **Thesis Committee member -** Jayden Leonard, Physics Program (GS80), 3pm, S 281, Marshall University, Huntington, WV, 25755.

(10/23/2023) **Middle School Gifted and Talented MGV**, 9:30-10:30 am, Memorial Student Center BE5, Marshall University, Huntington, WV, 25755.

(10/23/2023) **Tri-State STEM+M Fair -** MU Recruiter, 12 – 4 pm, 702 Solida Rd, South Point, OH 45680.

(F20 – F23) **Invited Guest Editor for Two Special Issues of the Journal *Micromachines*** - an open access journal of micro/nano-scaled structures, devices, systems as well as related micro- and nanotechnology from fundamental research to applications. The ground work for the special issue: Micromachines | Special Issue : Nanomaterial-Based Membranes and Applications (mdpi.com) was laid out in a preliminary special issue "Nanomaterials and Nanostructures Emergent Water Purification Technologies". The advertisement was featured in the Spring 2021 National Science Foundation Established Program to Stimulate Competitive Research - Research Infrastructure Improvement Track-1 Newsletter. Unfortunately, submitted papers for the 2022 Special Issue I rejected as they did not meet the requested theme of the special issue. The later more inclusive Special Issue provides a broader umbrella to encompass a broader range of topics. My group had published an article in the second Special Issue, *Azo-Dye-Functionalized Polycarbonate Membranes for Textile Dye and Nitrate Ion Removal (https://doi.org/10.3390/mi13040577).*

(F19 – F23) **Physics of Flight Posters -** I have worked with Yaeger Airport Directors and the former Dean of the College of Science (Dr. Chuck Somerville) at Marshall University to get indoor and outdoor posters on airport property for all ages of passenger on the topic physics of flight. The preliminary posters have been sent to airport Director for review in summer of 2020, but the overall progress of creating a greater Marshall University presence there has been delayed with disruptions caused by covid, changing administration, and college restructuring. I would be happy to participate in this endeavor again when the situation stabilizes if there is a desired interest.

(S18 – S23) **Department TV Monitors -** In spring 2018 I managed to work with Jim Booth in COS IT to get a free large Monitor and free laptop to run a small power point slideshow advertising and promoting the Physics Department, physics faculty, and physics student successes. This was quickly replicated by the Geology Department with keen placement in front of their main lecture hall. I pushed to have Physics also then put an additional new large monitor in front of own main lecture hall, updating both computers on both monitors at the same time in Spring 2019. I originally assisted Dr. Sachiko McBride in maintaining the content on the TV monitors and became solely responsible for them starting summer 2021. All physics faculty and physics students are welcome to provide information to be posted. They just had to send it to either Dr. Sachiko McBride (F18 - S21) or me on the appropriate size PowerPoint slide, which was provided multiple times over the years. Before the start of fall 2023, all such monitors across campus were removed and programming discontinued.

(S17 -S23) **Hiring Committee Member, Physics Department, Marshall University –** Provide input for the hiring of all new faculty. Committee ended with fall 2023 merger with Mathematics Department.

(S17 – S23) **Research Committee Member, Physics Department, Marshall University -** This committee is to play a role in the development of capstone guidelines and procedures. Committee ended with fall 2023 merger.

(F17 – S23) **Chair of the Recruitment Committee – later known as the Green and White Day Committee, Physics Department, Marshall University –**In this role I attended as many recruiting events as possible (Green and White Days, New Student Receptions, Talented and Gifted (TAG) student workshops, University recruiting events, etc). In the event I cannot attend, I asked appropriate/available faculty members to attend. I tis role I had been responsible for designing new department brochures, and at points, responsible for ordering, acquiring, distributing, & organizing promotional products for the department, along with developing promotional curriculum documents. This official role has ended with the merger of the mathematics and physics programs into one new department in fall 2023.

As chair of the committee, I finished the department's inaugural 4-year flowchart for the pure BS physics degree. This visual flowchart was previously non-existent and desperately needed to visually/quickly show students (and parents) that they can graduate the program in four years. The Physics BS flowchart was originally started by then Adjunct Professor, Dr. Sachiko McBride, now Assistant Professor in the College of Educational and Professional Development and the College of Science; this flowchart was put together by comparing Degree Works, previous student's actual transcripts, the course catalog, and the physics department's ideal course schedule from the Department Chair at the time. Comparing all of these allowed the department to address some glaring issues with the course catalog and scheduling. Dr. Sachiko McBride also started the Double Major with Physics and Applied Math flowchart. As chair, I completed these flowcharts along with flowcharts totaling 3 dual majors in physics and math, 4 Areas of Emphasis within the BS physics program, and working with the Department chair for 2 new Master Degree tracks for the newly established GS80 program (thesis and non-thesis options) and a new 5-year accelerated Master Program. To create uniformity in advertising across the university, these flowcharts were requested to no longer be used in recruiting despite the crystal-clear clarity they provided. They were replaced by standardized checklists.

As chair of the recruitment committee, over the years I have played a large part in organizing "Physics Week" each year, which requires enormous amounts of time and organization throughout the year, especially in late summer/early fall semesters (though I do many things for this week, often unnoticed by many, the event would not be possible without the faculty and support staff). For this week, I reserved rooms, worked with faculty to move lab exam locations, scheduled to move classes to open rooms, found student proctors to cover exams for faculty, build demonstrations, help other faculty build their demonstrations, I helped to invite alumni speakers to the event, helped to organize schedules for possible invited guest speakers/alumni, secured audio/visual equiptment and set-it up, ordered food from off-site vendors, helped decide overall block of times for "Research Orientation Day" and its location (a day when the Physics majors and faculty get acquainted and/or re- acquainted over brief faculty/alumni talks and an annual BBQ), and I am 100% in charge of organizing the finale of what was "High School Physics Day -HSPD" (a day for invited high schools when the faculty put on short demos shows for the students, provide lunch, and give department tours).

HSPD gained national attention showing up in the 2019 winter edition of the SPS Observer (pg. 28), the Society of Physics Students quarterly magazine. Though HSPD was not in the format I originally envision when I first conceived the idea, it has still proven to be an effective recruiting tool for Marshall. We had reached our maximum attendance of ~400 students in fall 2019 with things still running smoothly. During this week I also work with the Marshall University Police Department to ensure the students safety for loading and unloading of students, and worked with Sodexo catering services who have helped sponsor food for HSPD. In fall 2017 & fall 2018 I invited Alumni to this week; this communication with Alumni has been graciously taken over by the physics department chair starting in Fall 2019. The first two organizations of this annual event and physics week primarily fell squarely on my shoulders and went well, but I appreciated the increased assistance with the annual week-long event from fellow faculty and support staff each year. This increased support from the faculty and staff for physics week allowed me more time to focus on the organization of High School Physics Day, which was welcome.

As Chair of the Recruitment Committee, I had personally participated in and/or assisted in planning numerous face-to-face events ranging from a solar eclipse outing for the public, to numerous high school workshops, to annual college and recruiting fairs in the state. Below I have provided links to ~ 100 outreach/recruitment/retention events that I have either personally participated in or personally planned and participated in as Chair of the Recruitment Committee. The events taper off in March of 2020 when covid hit, but slowly rise again when things started to open up. Each link has pictures from the event and an individual description; they are too numerous to discuss here. Events where a faculty member was sent in my place for a planned event, and all our other recruiting events, should be on our department website and are not listed below (only events that I participated in, and have pictures for, or that I planned, are listed below – more events exist than what is listed here as not all events had pictures and links to social media).

- 05/23/2023 Huntington High AP Finale
- 05/18/2023 WV GEAR UP Career Fair
- 04/01/2023 Green and White Day
- 03/08/2023 Webster Co. Motor Workshop
- 02/04/2023 Green and White Day
- 11/14/2022 PikeView HS Recruitment
- 11/05/2022 The 59th International Festival
- 11/04/2022 West Virginia Makes Festival
- 10/27/2022 HMS Pumpkin Drop
- 09/17/2022 Green and White Day
- 08/20/2022 Rec fest Summer 2022
- 08/03/22 New Student Orientation with SPS
- 07/20/2022 3D Printing/Motor Workshop
- 07/12/22 New Student Orientation with SPS
- 07/06/2022 Kellogg Elementary Demo Show
- 06/29/2022 Upward Bound Motor Workshop
- 06/07/22 New Student Orientation with SPS
- 05/17/22 Pin Hole Cameras at 2022 Sky Fest
- 04-26-2022 Chapmanville Motor Workshop
- 04-02-2022 Green and White Day
- 03-29/31-2022 Energy & Motion Workshop
- 02-11-2022 Green and White Day
- 01-27-2022 Sigma Pi Sigma Recruitment
- 01-20-2022 SPS and Physics Recruitment
- 11-11-2021 Green and White Day
- 11-06-2021 The 58th International Festival
- 11-2/9-21 HMS Pumpkin Drop
- 08-21-21 Rec Fest Summer 2021
- 08-5-21 Physics & SPS Recruitment
- 07-16-21 SPS Student Recruitment
- 07-15-21 Physics Student Recruitment
- 07-01-21 Upward Bound Coaster Workshop
- 06-16-21 Upward Bound Motor Workshop
- 04-16-2021 Green and White Day
- 02-29-2021 Science Olympiad
- 11-07-2020 The 57th International Festival
- 03-11-2020 Logan HS Motor Workshop
- 02-29-2020 Science Olympiad
- 02-17-2020 Green & White Day
- 02-01-2020 Science Olympiad
- 11-11-2019 Green & White Day
- 11-09-2019 The 56th International Festival
- 11-8/9-2019 A-AAPT Workshops
- 11-07-2019 A-AAPT Keynote Speaker
- 11-01-2019 Wayne Elementary Demo Show
- 10-18-2019 High School Physics Day
- 10-16-19 Research Orientation Day &BBQ
- 10-14-19 Billiards with the Physics Majors
- 10-5/6-19 SPS Greenbank Observatory Trip
- 10-01-2019 Kanawha County College Fair
- 09-30-2019 Huntington Area College Fair
- 09-28-2019 Green & White Day
- 08-22/23-19 WoW Events
- 07-18-19 Hovercraft for Flight Science Camp
- 06-21-19 Invited Speaker, Dr. Bruce M. Law
- 06-19-19 Girl Scouts of Kentucky WRC
- 07-8/9-19 Two Day Catapult Workshop
- 04-30-19 TAG Student Workshop
- 04-23-19 Bluefield HS Motor Workshop
- 04-23-19 STEAM Knight at CM HS
- 04-13-19 Science Blitz
- 04-09-19 Green & White Day
- 04-03-19 Logan HS Motor Workshop
- 03-16-19 Science Olympiad
- 03-13-19 Summers County Motor Workshop
- 03-1/2-19 STEM and the Arts Film Festival
- 02-16-19 Upward Bound Motor Workshop
- 12-01-18 Green & White Day
- 11-12-18 Green & White Day
- 11-07-18 Westside HS Motor Workshop
- 10-27-18 Halloween Science Bash
- 10-19-18 High School Physics Day
- 10-17-18 Research Orientation Day &BBQ
- 10-15-18 Invited Speaker visit, Dr. Goff
- 10-12-18 Green & White Day
- 10-10-18 Bluefield HS Motor Workshop
- 10-2/3-18 College Fairs
- 09-08-18 MU Tailgate Party Representative

- 08-15-18 COS WOW Session 2018
- 08-16-18 SPS Sponsored WOW Dodgeball
- 05-19-2018 South Point STEM Day
- 04-27-18 Logan HS Projectile Workshop
- 04-24-18 TAG Student Workshop
- 04-12-18 STEAM Knight at CM HS
- 04-12-18 Chapmanville HS Workshop
- 04-11-18 James Monroe HS Workshop
- 04-06-18 Faculty & Student Bowling
- 03-31-18 Science Blitz
- 03-27-18 PikeView Projectile Motion
- 03-09-18 AAPT Demo Slam
- 03-10-18 AAPT Joint Spring Meeting
- 02-24-18 Science Olympiad
- 11-29-17 Spring Valley Motor Build
- 11-10-17 Green & White Day
- 11-08-17 Westside HS Motor Build
- 11-04-17 Halloween Science Bash
- 10-20-17 High School Physics Day
- 10-18-17 Research Orientation Day & BBQ
- 10-17-17 Bluefield HS Motor Workshop
- 10-16-17 Observing the Sun
- 10-2/3-17 College Fairs
- 09-23-17 Green and White Day
- 08-21-17 Solar Eclipse
- 08-20-17 Week of Welcome Carnival

In this role, I also met with any prospective students and their parents that are interested in pursuing an education in physics. I served as an unofficial student advisor for all incoming physics students at any time they needed it. Being in this role, combined with my open-door policy, I have become a magnet for our service students and physics majors to seek me out so they can explain to me their challenges or issues they may be having within the program. Importantly, I listen to the student's voice and try to assist them in any way I can; all in an effort to resolve their issues and keep MU student retention high. I also try to make our majors feel valued and appreciated, thus I suggested the department recognize our majors publicly with awards and have their names displayed on respective permanent plaques in the Science Building for their awards each spring, the department took this a step further by presenting them their own individual plaques/certificates publicly. All of this is in an effort to focus on retention of students, which goes hand-in-hand with recruitment. I also worked with the Director of the Applied Sciences M.S. Program to provide promotional items for the GS80 M.S. Physics Degree program developed in spring 2018 and to pass on to interested graduate students and potential graduate student recruiting opportunities. I also made graduate recruitment folders for events like the Annual College Preview Days (3/20/19 - a graduate school recruiting event and PhysCON 2019 & 2022). As Chair of the Recruitment Committee, I also advocated for our students and the Director of Graduate Studies to be involved in the national quadrennial physics conference PhysCON 2019 to advertise the M.S. program and to highlight our new M.S. program on the popular website www.gradschoolshopper.com/gradschool/. In November 2019, the director of the graduate program went to PhysCON along with 4 undergraduate students and one graduate student. Assistance was gained in fall 2021 with promotional material for the graduate programs made by other faculty. Requests for inclusion in the gardshooper.com in fall 2019 where accomplished in fall 2022 for the first time. I personally took one undergraduate student to PhysCON 2022 inn Washington D.C. and recruited for all our MS programs as an exhibitor at the event. Prior to F17, and prior to taking the newly developed role of Recruitment Committee Chair, I was still devoted to advocating for all our faculty and majors in the department to improve the image of department independent of having such a title as Chair of the Recruitment Committee. I advocated for many things like faculty and student led colloquiums, having an up-to-date website, an up-to-date undergraduate course catalog, and the department acquiring new major instrumentation to attract new majors; all of these items have been accomplished and successful except for the idea of student led colloquiums, which does not seem to be a popular idea. In this role I continue to promote the faculty, students, and 'new' courses (PHY 350, PHY 360, and PHY 444) in any way possible (i.e. Physics Department website until I was removed from that committee in spring 2021, Physics TV Monitors in the Science Building until monitors were removed in fall 2023, and the Physics Department Facebook Page, all of which I instituted, developed, manage, managed, or help to still manage).

(07/11/2023) **Marshall University's annual Health Science and Technology Academy (HSTA) –** Hosted four face-to-face Science of Sound Workshops for ~ 120 ninth-graders from throughout West Virginia. Marshall University, Huntington, WV, 25755. 07/12/2023 HSTA Science of Sound

(06/23/2023) **West Virginia GEAR UP STEM Expo –** Participated in promoting the physics program with hands-on interactive demos and addressing student questions about careers in physics. Hosted face-to-face at Marshall University, Huntington, WV, 25755.

(6/22-23/2023) **West Virginia GEAR UP Workshops –** Hosted three motor workshops for 8th and 9th grade students from schools in eleven counties in WV that are underserved. Students mostly come from low income, low education attainment homes. A large percentage of the kids in attendance at the camp were the first in their families to go to college. Hosted face-to-face at Marshall University, Huntington, WV, 25755. 06/22-23/2023 WV GEAR UP

(03/04/2023) **Science Olympiad - Event Supervisor for Division C. Trajectory Event -** Supervised and scored the Trajectory event for the state wide tournament. Hosted face-to-face at Marshall University, Huntington, WV, 25755.

(02/17/2023) **Class of 2026 Welcome Reception -** Welcomed newly admitted students. Also tried to recruit students to the College of Science. The Class of 2026 Reception for admitted students hosted in the Arthur Weisberg Family Applied Engineering Complex on Saturday, February 17th, from 5:00 – 6:30 p.m..

(11/15/2022) **First2 Network Club Student/Faculty Networking Dinner -** The dinner was an idea of the students in the First2 Network club and is sponsored by the College of Science. The event promoted networking and the continued mission to connect with the students. November 15th at 6 pm, Calamity J's, Huntington, WV.

(11/02/2022) **Elected to the newly formed CoS Faculty Concerns Committee –** The committee aimed to provide an avenue for our faculty and staff to formalize their concerns as well as aid in policy development across the college. Secondly, this committee aimed to provide a formal structure for students to bring concerns to the college and thus be presented to the Dean. With the guidance of the new Dean, this committee ended up being folded into the Strategic Planning Committees of the Departments and thus dissolved in Fall 2023.

(10/17/2022) **COS Dean Search - Search Firm Listening Session** – Attended to gather information to help rely to colleagues when asked about updates on the position. 3-4 pm, 402 Drinko Library, Marshall University, WV, 25755

(10/6-8/2022) **Exhibitor PhysCON 2022** – Attended grad school fair as an exhibitor recruiting students for our MS Physics Programs at Marshall. Omni Shoreham Hotel. Downtown Washington, DC.

(S21 – S22) **Content Developer for STEAM Trek -** Provide content related to the Marshall University Physics Department and West Virginia Science Olympiad to be incorporated into the online recruiting platform found at STEAM Trek – Welcome to STEAM Trek from WV AllSTAR! (wvallstarsteamtrek.org).

(05/14/2022) **Regional Health Sciences and Technology Academy Symposium Judge** - Judged student presenters on Title, Observation, Background Information, Research Question, Hypotheses, Variables, Procedures, & References when providing a formal oral presentation. 10-2 pm. Various locations, Marshall University.

(04/29/2022) **Invited participation in National Science Foundation Highlight** – Invited by Associate Director of Science & Research, West Virginia Higher Education Policy Commission for NSF Award Grant

No. OIA-1458952 for the annual report. Focus was on the Preservice and Early Career Research for Teachers, PERT program, and recent research results.

(04/30/2022)
(12/11/2021)
(12/15/2018)
University Marshal for Fall 2018, Fall 2021, and Spring 2022 Graduation Ceremonies - Represented the Physics Department in Full Faculty Academic Regalia and led the entire graduating class of College of Science students to the podium and across the stage to receive their diplomas. I felt honored to take the place of Ralph E. Oberly at this event (Dr. Oberly contributed 49 years of service to Marshall). Also, filled in for Mike Castellani, Chemistry, on two occasions who has contributed 35 years of service to Marshall University, 12/15/18, 7:45 am - 12 pm, Big Sandy Superstore Arena,12/11/21, 7:45 am - 12 pm, and 4/30/22, 7:45 am - 12 pm Mountain Health Arena.

(03/14/2024)
(03/25/2022)
Pi a Professor Day- The Biomedical Engineering Society (BMES) was fundraising for future opportunities like attending BME related conferences, traveling to tour facilities and network with potential job placements, and fund materials to grow thier program. From the engineering students, *"We are planning on this to be a CECS wide event with participants from each of the engineering departments. However, when discussing some of our favorite professors who we thought would be lighthearted enough to participate, your name came up. We were hoping since you do have a large majority of engineering students, that you would consider participating in our fundraiser."*

(2021-2022)
MU Presidential Search and Presidential Listening Sessions - 7/12/2021, 10:15-11:15 am, 1/24/2022 12:00-1:00 pm, and 1/27/2022, 3:00-4:00 pm.

(04/28/2022)
Capstone Reader/Committee Member - Andy Prostor, Physics Education Major, "Herd Hours: What Makes It Successful and How It was Affected by COVID-19". Presentation 4 - 6 pm. His project was based on Herd Hours data collected from my class and Dr. Sachiko McBride's classes post covid.

(04/08/2022)
Forensic Science Poster Judge - College of Science Research Expo, Huntington, WV, April 8th. 9-11 am.

(03/09/2022)
CAP (Chapter Accreditation Program) awards ceremony - Supported Sigma Phi Epsilon in all of their efforts and endeavors and this was a chance to celebrate their successes. Our chapter came home with the Advisor of the year Award and the Scholastic Achievement Award. Sponsored by Fraternity & Sorority Life, Division of Student Affairs – LEAD Center. 8-9 pm, The John Marshall Room, Marshall University, Huntington, WV, 25755.

(03/03/2022)
Emergency Session Chair for the 2022 APS March Meeting. Volunteered to be an emergency/on call session chair if needed. Received virtual training on March 3rd, 10:00-11:00 am.

(03/05/2022)
Science Olympiad - Event Supervisor for Division C. Trajectory Event - Supervised and scored the Trajectory event for the state wide tournament. Hosted face-to-face at Marshall University, Huntington, WV, 25755.

(03/05/2022)
Recruiting - Tabling for: The Society of Physics Students, The Physics Department, and Sigma Phi Epsilon occurred from 4-5pm before the awards ceremony at 2022 Science Olympiad. Lobby of AWEC, Marshall University, Huntington, WV, 25755.

(02/19/2022)
Class of 2026 Welcome Reception - Welcomed newly admitted students. Also tried to recruit students to the College of Science. The Class of 2026 Reception for admitted students hosted in the Arthur Weisberg Family Applied Engineering Complex on Saturday, February 19th, from 5:00 – 6:30 p.m. Recruited Josie Farris to Physics at this event.

(02/03/2022)
Invited Business lunch with National SPS Director – At the request of the SPS National for our valuable feedback, I helped organize a business lunch with the National Director of Society of

Physics Students & Sigma Pi Sigma (ΣΠΣ), Dr. Brad Conrad and the Director of Sales & Marketing for the American Institute of Physics, Christina Unger Ramos. The meeting focused on the recent issue of gradschoolshopper (https://gradschoolshopper.com/gss-magazine.html). This magazine is a fantastic resource for students curious about the process of selecting and applying to graduate school in many fields with particular emphasis on Physics and Astronomy and related Fields. The magazine is a printed companion resource to go with the https://gradschoolshopper.com/ website, which is an outstanding searchable database of schools that have graduate programs in Physics and Astronomy and related Fields. The discussions led by Dr. Conrad and Christina Unger Ramos and exchange of ideas with the students promoted the transfer of knowledge about applying to graduate school programs between senior and younger members of the group, but also provided important feedback to AIP about changes that could be made to the upcoming issues that would help students.

(12/10/2021) **RSS Feed on Future Careers Page Established (**https://www.marshall.edu/physics/careers/**)-** Worked as the mediator between those in Career Services and those in CoS IT to complete this shared objective. This feed is aimed at helping out physics students find internships and employment.

(10/18/2021) **ABET Accreditation Virtual Meeting for Programs in Engineering -** Participation requested by David A. Dampier, Ph.D., Dean, College of Engineering and Computer Sciences. Overall, a productive meeting. Physics was supportive of the growth of Engineering and no additional resources by the physics department were requested. 3:30 pm virtual meeting.

(8/11/2021) **AAPT High School Committee meeting -** Invited by the AAPT community to participate. Provided feedback to committee Chairperson Justine Boecker.

(Sum 2021)
(Sum 2019) **Supporting PERT Faculty Member, Perservice and Early Career Research for Teachers -** Facilted a research environment for two senior high school teachers, two top ranked high school students, and one College of Education and Professional Development student. PERT is a five week, 35 hour per week, summer research program designed to give those involved the opportunity to work with leading researchers at Marshall University. Supported by the National Science Foundation Award OIA-1458952. I was a mentor in summer 2019 and 2021.

(S19-S21) **Science Olympiad - Event Supervisor for Division C. Circuit Challenge -** 03/16/2019, 2/29/2020, and 2/8/2021 (virtual). Supervised the construction of the hands-on component of the circuit lab and made and distributed the necessary exam and scored all teams when needed. Marshall University, Huntington, WV, 25755.

(F18 - S21) **Physics Department Co-Webmaster -** Assist then physics department webmaster, Dr. Sachiko McBride (S17, F18-S21), and ensure web content was uploaded as originally envisioned when I was the department webmaster (F17-S18). The website was overhauled in fall 2017 through fall 2018 in three stages. Since fall 2018, the webpage has only needed to be maintained with up-to-date information and comply with university standards and recommendations. Dr. Maria Hamilton is be the new webmaster at the end of spring 2021. After Spring 2021 through the present, I still help post items and provide web help and assistance when requested, but I am not actively driving, reviewing, seeking, or checking the content posted.

(F18 - S21) **Physics Department Secondary Academic Advisor –** I worked with Vicki Cole (retired in fall 2019), Sara Simpson (switched university positions in fall 2024), Cindy Cole (retired in fall 2022), and Justin Fleming (transferred to Engineering fall 2022) in the College of Science to ensure that Physics majors are properly advised and that students can remain on track for a 4-year graduation plan and have a schedule that is tailored to their interests and objectives. Different students need different levels of interaction for advising. Some transient one-semester students prefer not to step foot in an advisor's office despite repeated requests for meetings. Students officially advised on record are listed below. During F19 and S20 I had 8 advisees (**F18-6 students, S19-4 students, F19**

– 8 students, S20-8 students, F20-4 students, and S21-2 students). Official secondary advising roles by all physics faculty were discontinued after Spring 2021 and left to the 3 professional advisors in the College of Science. In lieu of 'secondary advising roles' physics faculty were given 'faculty mentor' roles instead of academic advising roles. Below were my official advisees.

(F20- S21)	Pickens, Brandon
(F20)	Snider, George
(S20)	May, Adrian
(S20)	Prostor, Andrew
(F19 - S20)	Hanson, Travis
(F19 - S20)	Ibarcena Woll, Maria Paula
(F19 - S20)	McCloud, Jeremy (student I personally recruited from PHY 211)
(F19 - S21)	O'Dell, Alec (student I personally recruited from PHY 211)
(F18)	Chirico, Joseph
(F18 - S20)	Moon, Michael (personally recruited at the Class of 2022 Reception)
(F18 - F19)	Summers, Dallas
(F18)	Pine, Mason
(F18 - F20)	Joy, Sean (student I personally recruited from PHY 211)
(F18 - F19)	Vincent, Ryan - Graduate Student (I personally recruited from a PA trip)

(01/18/2021) **First2 Network Embedded Student Project -** This was implemented in my University Physics I and positive feedback was provided by the first-generation student participating in the project. This project was planned and originally implemented at WVU by Michelle Richards-Babb (WVU Chemistry department). As part of a statewide project to double the graduation rate for first generation students attending WV schools through improving their awareness of their understanding of material and of their study habits, students were asked to perform weekly analyses of their understanding, habits, and provide feedback. The provided feedback gave information about how students are participating in and learning from the methods of teaching and class environments established by course instructors.

(02/09/2021) **Recruiting Virtual Visit - Saint Joe's High School Student -** In conjunction with Deborah Curry, JD, Program Director for Rural Outreach and Development, Robert C. Byrd Center for Rural Health, Marshall University, Joan C. Edwards School of Medicine, 4 pm, February 9th, 2021.

(11/07/2020) **Promotional Recruitment and Demonstration Video for 57th International Festival at Marshall University -** The virtual event was hosted by the Office of Admissions, November 7th from 4pm to 8pm. Click here to see the video.

(10/28/2020) **Virtual Involvement Fair -** a virtual fair that allowed attendees to browse and request to join participating student organizations. Participated on behalf of the Society of Physics Students. October 28th, 4 - 6 pm, 2020.

(10/24/2020) **Appalachian-Section-AAPT Business Meeting and open discussion on Covid-19 effects on teaching. Virtual,** October 24th, 2020, from 12:00pm-1:00pm.

(10/07/2020) **Virtual Recruiting Visit - Logan High School -** Done in conjunction with Deborah Curry, JD, Program Director for Rural Outreach and Development, Robert C. Byrd Center for Rural Health, Marshall University, Joan C. Edwards School of Medicine, 11am, October 7th, 2020.

(08/13/2020) **Recruiting Brainstorm Session for Fall -** Meet virtually with Debbie Curry J.D., who is the Rural Outreach Director for the School of Medicine and Jennifer Plymale, who is Associate Dean of Admissions for JCESOM and Director for the Robert C. Byrd Center for Rural Health to discuss how we can keep our recruiting efforts alive during covid with limited access to high school students. August 13th, 10-11 am.

(08/11/2020) **Virtual Town Hall meeting for Return to Campus -** attended to stay abreast on information related to covid-19 to prepare my students in fall classes, students in the lab, as well as colleagues. Virtual, Aug. 11, 2 p.m.

(08/05/2020) **Virtual Town Hall meeting for Covid-** attended to stay abreast on information related to covid-19 to prepare students and families with updated information when asked about fall course delivery. Virtual, Aug. 5, 6 p.m.

(05/01/2020) **Capstone Committee Chair –** Jon Keaton, Physics, "Mechanical Properties of Freely Suspended Self-Assembled Nanoparticle Membranes". Virtual. 11 am.

(S19 - S20) **Invited interviewer for accelerated BS/MD Program, Joan C. Edwards School of Medicine -** 02/09/2019 & 02/08/2020. With the recommendation of Debbie Curry, who is the Rural Outreach Director for the School of Medicine, Jennifer Plymale, who is Associate Dean of Admissions for JCESOM and Director for the Robert C. Byrd Center for Rural Health, invited me to interview applicants for their accelerated BS/MD program. Interviews occurred from 8:30 am to 11:30 am at Marshall Health, 400 Hal Greer Boulevard, Huntington, WV 25701.

(01/18/2020) **Class of 2024 Reception -** Welcomed newly admitted students and recruited for the College of Science and physics. Arthur Weisberg Family Applied Engineering Complex, Jan. 8, from 5:00 – 6:30 p.m. Sent faculty in my place on 2/16/19 as I was unavailable for a similar event.

(11/7-9/2019) **Conference Co-organizer -** Assisted Dr. Maria Hamilton, Physics Dept. at MU to organize the Appalachian Section of the American Association of Physics Teachers Annual Meeting. Keynote Speaker, former astronaut Dr. Don Thomas. The meeting commemorated the 50th anniversary of the first moon landing. The conference was open to students and high school teachers from throughout the region. It started at 7 p.m. Thursday, Nov. 7, in Room 154 of Smith Hall and was free and open to the public. A reception followed in the Birke Art Gallery Atrium, with the Birke Art Gallery in Smith Hall holding special hours of 6 to 9 p.m. for the event. Bo Lowrey, a NASA solar system ambassador, also provided a free talk open to the public as part of the A-AAPT conference. The meeting had talks and workshops presented by local educators from surrounding high schools and universities. Thank you to the Society of Physics Student members Ryan Vincent, Ellie White, and Jackie Sizemore for assisting in providing Scanning Electron Microscope/Atomic Force Microscope tours and assisting with conference registration., I assisted in room reservations, advertising/ communications/ fliers, organized the special gallery hours, and organized the SEM and AFM tours. Events started at 5pm on 11/7 and ended at 2pm on 11/9 and were held in Smith Hall 154, BBSC 102, the Science Building rooms 103, 166, 276, and 277 on campus at Marshall University.

(10/17/2019) **ABET Accreditation meeting for Electrical Engineering & Computer Electronics -** Meeting with the ABET accreditation team visiting campus to discuss the accreditation of the new EE and CE programs in Engineering. It was nice to walk into a room and have someone on the team say, "You must be Dr. McBride, we have heard many good things about you from the students earlier this morning." Receiving such compliments and making a difference in so many students lives, to have such a statement echoed by the student body that I teach or have taught, is what I currently and will always strive for as an educator.

(10/8/2019) **Student Government Association Finance Committee Meeting -** Attendance requested to approve SPS's SGA funding for fall 2019. Addressed student finance officers' questions regarding funding for SPS for fall 2019. John Spotts room, MSC, Marshall University.

(10/8/2019) **Student Government Association Senate Meeting** - Attendance requested to approve SPS's SGA funding for fall 2019. Addressed student senators' questions regarding funding for SPS for fall 2019. 4pm, 2W22, MSC, Marshall University.

(S17 - Sum 19) **Assessment Committee Member, Physics Department, Marshall University –** The aim was to help monitor pre-and-post student performance on such tests as the Force Concept Inventory (FCI)

that students take as they pass through key classes in the program. I requested steps be taken to move the data collection process to more modern methods such as the use of Scantron answer keys instead of entering data by hand from a DIY in-house answer form.

(2018-2019) **Student Organization Advisor Networking Breakfast** - Attended 09/05/2018 and 08/29/2019 Events. Socialize and network with colleagues and fellow advisors. Hosted by P. Andrew Hermansdorfer Director of Student Involvement & Leadership, Division of Student Affairs. Memorial Student Center, the LEAD Center. 7:30 am to 9:30 am.

(07/03/2019) **AFM Manualette -** Have written a condensed user-friendly Atomic Force Microscope manual for faculty and students to asset with operation of the CoreAFM. This reduces the 316-page full manual down to 14 easy to follow pages with the minimum knowledge needed for a novice user to run the Atomic Force Microscope (AFM). This will be the central document used for future training of faculty and students. The following users have been trained using this manualette: Dr. Judy Fan (Assoc. Prof. Physics), Dr. Arka Chattopadhyay (visiting postdoctoral scholar), and Jon Keaton (undergraduate physics student). While I was the care taker for the instrument, before being allowed to operate the AFM by themselves they must have 20 hours of supervised training.

(06/21/2019) **Organized Schedule for Invited Guest Speaker Dr. Bruce M. Law -** The Physics Department in Marshall University's College of Science hosted American Physical Society Fellow Dr. Law from Kansas State University on June 21st, 2019. Dr. Law gave a talk to all interested faculty and students on the subject of "Particles at liquid surfaces: finite-size effects".

(06/13/2019) **Physics Common Exam Topics and Equation Sheet -** With the assistance of Dr. Sachiko McBride, we voluntarily helped to provide the department faculty with the first drafts of the equation sheets for proposed use in the inaugural common exam. We also helped provided a realistic list of topics that could be covered in a 14-week semester to appear on the common exam. We did this all in an effort to help ensure the most uniformity and fairness for the students as much as possible and to assist fellow faculty who might not have equation sheets already prepared or have a list of what topics are to be covered in a then reduced 14-week semester. With the toughest version made, the first version, which required agreement between all faculty on what equations to include and not include, we are glad to see other faculty have stepped up to maintain the edits and further evolution of the equation sheets.

(F17 – S19) **West Virginia Science Adventures - Camp and Festival College of Science Faculty Content Developer -** Since 'The Great American Eclipse' in summer 2017 I have assisted in planning and participating in outreach events through West Virginia Science Adventures such as the annual Halloween Bash and annual Science Blitz in the spring during pre-covid times.

(05/15/2019) **PERT Kick Off Reception (Preservice and Early Career Research for Teachers)** - This was a meet and greet between participating faculty, new PERT members, and their parents. 6-8 pm, 2nd floor, BBSC, Marshall University, WV, 25755.

(04/30/2019) **Huntington High School Recruitment Trip** - Accompanied by the Physics Department Chair, we went to Huntington HS to recruit top students from the sciences to Marshall University. I gave a 20-minute presentation to the students. 12:30 - 1:15 pm, Huntington High School, Huntington, WV, 25701.

(04/01/2019) **M.A.R.S.** - Frederick W. Walker, M. D. personally invited me to participate in the Marshall Academy of Rising Scientists (MARS) based on communication from others of my excellent teaching and outreach skills. MARS is a special activity of then President of the University, Dr. Jerome Gilbert. The camp was supposed to run June 16th through June 19th but was cancelled due to low enrollment.

(S18-S19) **Annual Diversity Breakfast -** Invited by Dean of the College of Science each spring to attend the Diversity Breakfast and share in the success of Marshall's diversity. 7:30 AM, MSC Don Morris Room, 02/23/2018 & 02/22/2019.

(S19) **Letter of Support for Postdoctoral Scholar –** provided Dr. Arka Chattopadhyay a pathway to be a Marshall University Non-Employee Volunteer Visiting Scholar to work in my laboratory while completing his OPT (Optional Practical Training). Currently Dr. Chattopadhyay is employed as an Assistant Research Professor in the Department of Civil Engineering, Marshall University Weisberg Applied Engineering Complex, Marshall University, WV, 25755.

(02/09/2019) **Representative for the College of Science on Undergraduate Mentoring and Advising -** I was nominated for this opportunity by the Associate Dean of the College of Science, who has said I come "very highly recommended" when it comes to advising. Academic Affairs invited representatives from the National Academic Advising Association (NACADA). The consultants led a discussion on our college's advising practices. Members, including myself, provided feedback on our faculty role in mentoring and advising.

(11/10/18) **Charlotte Blackout/Faculty Appreciation Game** - volunteered to attend blackout game against Charlotte with intentions on going onto the field at half time to represent COS. I went to the game, but no public recognition of faculty was provided as mentioned.

(10/15/18) **Organized Schedule for Invited Guest Speaker Dr. John Eric Goff -** The Physics Department in Marshall University's College of Science hosted world-renowned sports physicist Dr. John Eric Goff from the University of Lynchburg, Lynchburg, Virginia, Monday Oct. 15, 2018. Dr. Goff is the Chairman of the Physics Department at Lynchburg. 8. Dr. Goff gave two talks, "Friction Challenges from the Sports World" and a "Summer of Great Sports Science".

(9/17/2018) **Author of the Inaugural Marshall Physics Department Newsletter -** Created the first Physics Department Newsletter known to exist since my arrival at Marshall in Fall 2016. The inaugural version, targeted towards Alumni, was approved by the department chair and came out in September 2018. This was either emailed and/or mailed to ~ 170 Alumni. Since being established, this has been a task taken over by the Department Chair of Physics with additional newsletters coming out in Spring 2019 and spring 2022, these stopped with the Merger of Mathematics and Physics programs.

(09/05/2018) **KY-WV LSAMP Louis Stokes Alliance for Minority Participation Dinner** - Hosted by Drs. Girmay Berhie and Regis Houachissi. MSC - Shawkey Dining Room 7:00 - 8:00 pm. Represented the Physics Department and socialized and networked with students in the program and senior leaders of the program.

(F17 - F18) **Physics Department Webmaster -** This task was originally taken on by then Adjunct Professor Dr. Sachiko McBride in spring 2017 to summer 2017. Though great strides were made during this time period, with the many links and webpages under the umbrella of the physics department homepage, there was still much to be done. Starting in fall 2017, inspecting each page and each link, I carried out a massive overhaul in three phases: (1) removing outdated and information that was no longer correct, (2) upload current attractive news and information that highlights and showcases the Department of Physics and students and faculty within it, and (3) make sure all the details of the content were correct regarding the curriculum. I personally have added many new pages such as Alumni Spotlight, Scholarships, Department News, Upcoming Events, Student Achievements, Faculty Achievements, Master Degree Programs, and new faculty and student photos: http://www.marshall.edu/physics/. Post 2018, the web page only needed to be maintained with updated news and information and to make sure the curriculum information stays current. The university role out of new websites in summer 2019 for the most part did not affect our webpage drastically as our format and content was very similar to the themes decided by the university.

(F16 - F18) **PHY 444 Advising Committee Member, Physics Department, Marshall University -** Committee formed for the development of PHY 444 – "Advanced Laboratory" – A laboratory which I team taught starting in Fall 2018 involving Solid State, Materials Science, and Quantum Optics/Photonics experiments. As a committee member, I was responsible for selecting appropriate equipment for several solid-state & materials science experiments and developing the corresponding lab manual to accompany them. Dr. Wilson will run the Quantum Optics labs until his retirement at which point I started to run them.

(S17 & S18) **Science Olympiad - Event Supervisor for Division B and C. Optics Challenge -** Supervised the construction of the needed Laser Shoot, created and graded exams for both divisions (middle school and high school), and scored all teams. Marshall University, Huntington, WV, 25755. (02/11/2017 and 2/24/2018).

(03/16/2018) **Open House, South Charleston Marshall University Campus -** Assisted the Dean of the College of Science, Dr. Charles Somerville, and fellow colleagues from the South Charleston Campus Robert Cooper (BSC) and Andrea Duhon (MTH) recruit to students in the area to Marshall.

(03/9-10/2018) **Conference Co-organizer -** Assisted Dr. Maria Hamilton in the Physics Department at Marshall University to organize the first ever, Joint Spring 2018 Meeting of the American Association of Physics Teachers, Appalachian & Kentucky Sections. Personally, participated in the Demo Slam portion of the conference with a fire and sound demo and helped with last minute room changes and advertising. Events started at 5pm on 3/9 and ended at 4pm on 3/10 and were held in both Drinko Library room 402 and the Science Building rooms 100, 166, 276, and 277 on campus at **Marshall University**.

(02/24/2018) **Class of 2022 Reception -** Welcomed newly admitted students and also recruited students to the College of Science. Drinko Library, 5 - 7pm. Recruited Michael Moon to Physics at this event.

(10/23/2017) **ABET Accreditation Luncheon -** Spent time with ABET accreditation teams that were tasked with accrediting the BSME and CS programs here at Marshall. Courses such as PHY 211 and PHY 201 were discussed over lunch. Discussions also centered on whether or not Marshall's Engineering program was on track and could accept the anticipated growth and discussed how physics would be affected by such growth and whether the physics department could accommodate it.

(05/06/2017) **Volunteer Usher for Spring 2017 Undergraduate Graduation – Marshall University,** 7:15am - 8:30am, Big Sandy Superstore Arena.

(04/17/2017) **Invited Inaugural Guest Blogger for Marshall University Center for Teaching and Learning Blog.** "How Blackboard analytics helps both teachers and students". The end goal was to get more faculty to use technology in the classroom. http://www.marshall.edu/ctl/?p=3012

(F16 - F17) **"Becoming Part of the Herd Day" - 4 events**: *12/2 in 2016 and 1/27, 3/3, and 4/28 in 2017*. Physics Department Coordinator – Focus on Student Recruitment - Marshall University. Program terminated at the end of fall 2017.

(Fall - 2016) **Successfully rewrote Marshall University's Copyright Statement for all students and faculty campus wide**. I had the assistance and approval of those in the University's General Legal Counsel Office and the Office of Libraries and Online Learning.

(12/07/2016) **Math Department Senior Seminar Poster Judge -** 4 – 5 pm, SH 509, Marshall University.

(04/20/2015) **Steward of the Nanoparticle Faraday Discussion Meeting –** Royal Society of Chemistry http://pubs.rsc.org/en/content/articlehtml/2015/FD/C5FD90048D

(12/06/2014) **Lab Tour Guide/Coordinator, Physics with a Bang –** University of Chicago

(2011-2012) **Member - Advisory Committee to the Physics Dept. Head,** Kansas State University

(2009-2012) **Member – Machine Shop Committee,** Kansas State University

(2002-2003) **President – Society of Physics Students,** Bloomsburg University Chapter

STUDENTS SUPPORTED with LETTERS of RECOMMENDATION (82 - many w/ multiple letters)

(MU S26) Laikyn Hinkle
(MU S26) Geary Delaney
(MU S26) Kate Hall
(MU S26) Audrey Scott
(MU S26) Grayson Maddox
(MU S26) Erin Sturgill
(MU S26) Jacob Walker
(MU S26) Sigma Phi Epsilon
(MU F25) Liberty Mannon
(VCU F25) Isabella S. Mays
(MU F25) Kiera Kennard
(MU F25) Reagan Boggess
(MU S25) Ben Taylor
(MU S25) Nina Nugent
(MU F24) Wallace Payne
(MU F24) Ryan Vincent
(MU F24) Jeffrey Joering
(MU F24) Sigma Phi Epsilon
(MU S24) Megan Puritt
(MU S24) AJ Messinger
(MU S24) Tucker Lingenfelter
(MU F23) Nichcha Subdee
(MU S23) Justin Janney
(MU S23) Alayna Corwin
(MU S22) Triston Poston
(MU S21) Alex Evans
(MU S21) Josie Chapman
(MU F20) Ben O'Dell
(MU S20) Ethan Miller
(MU S20) Jarod Banzon
(MU S19) Evan Allen
(MU S19) Skylaar Mease
(MU S19) Andrea Papesh
(MU F18) Chloe' Marcum
(MU F17) Ron Nguyen
(MU F17) Chelsey Curry
(MU S17) Taylor Phillips
(MU S17) Allison Aldrich
(KSU S18) Jason Warring
(KSU F17) Jessica McCall
(KSU F17) Alec May
(KSU S17) Tina Langley
(KSU S17) Emily Johnson
(KSU S16) Brittany Chambers
(KSU S16) Robert Murrel
(KSU S16) Jackie Zenger
(KSU F15) Brian Wenger
(KSU F15) Jacob Dennet

(MU F25) **Brennon Craigo-** Accepted in Math 5 - Adult program Concord University for Fall 2025.

(MU S25) **Cathy Dillingham-** Accepted in the MU Forensics Masters Program for Fall 2025.

(MU S25) **Ahmed Keblawi -** Marshall University MD Early Assurance Program for Fall 2025.

(MU F24) **Soren Tyree -** Accepted into Ohio State University's Biochemistry Program for Fall 2025.

(MU F24) **Anastasia Seville** - Joan C. Edwards School of Medicine in the fall as a part of the M.D. Class of 2029.

(MU S23) **Katie Elkins –** Accepted into Medical School, Marshall University for Fall 2024.

(MU S23) **Tessa Gardner –** Accepted into Physician Assistant program at Marshall for fall 2023.

(MU S23) **Elijah J. Williamson –** Accepted a position at Tolsia High School in Wayne County as a Physics 1 and 2 teacher.

(MU S23) **La Trae Wilburton-** Accepted into West Virginia University's School of Medicine, fall 2023.

(MU S23) **Aidan Payton-** Accepted into a PhD. Program at the University of Pittsburgh, focusing on Physics Education, fall 2023.

(MU S22) **Cameron Kimble -** Accepted into West Virginia University's School of Dentistry, fall 2023.

(MU S22) **Megan Puritt -** Accepted into The Ohio State University's College of Optometry, fall 2023.

(MU S22) **Ashton Caruthers -** Accepted into an online STEM Education graduate program at North Carolina State University for fall 2022.

(MU F21) **Ala-Eddin Al-Astal -** Accepted to Marshall University's School of Medicine for fall 2022

(MU F21) **Morgan Johnson -** Successfully became a Physics tutor for Marshall University.

(MU S21) **Aakriti Damai -** Conditionally accepted into the MD Early Assurance Program for Spring 2023 at the Joan C. Edwards School of Medicine.

(MU S21) **Rebecca Foy -** Accepted into a summer research program called the Consortium on Plant Invasion Genomics (CPING) with Dr. Puppo here at Marshall University.

(MU S21) **Hayden O'Dell -** Accepted into both the West Virginia University School of Dentistry and the University of Utah School of Dentistry for fall 2022.

(MU S21) **Carrie Cockerham -** SURE scholarship in Summer 2020 to work in McBride Laboratory.

(MU F20) **Zach Preston** - Accepted into the spring 2021 Department of Defense SMART Scholarship Program in spring 2021. In summer 2020 Zach also accepted to the NASA Academy - project revolved around building a flight capable rover vehicle to navigate various terrains on Mars.

(MU S20) **Gregory Hart** - Accepted into Esslingen University of Applied Sciences in Germany in the Master of Engineering in Design and Development in the Automotive and Mechanical Engineering program for fall 2020 term. Also received offers from Virginia Tech, Carnegie Mellon, Alabama, WVU, and KU. Participated in an NSF Research Experience for Undergraduates (REU) program at Old Dominion University.

(MU S20) **Paige Morella -** Accepted to Marshall University's School of Medicine for fall 2021.

(MU S20) **Jeremy McCloud** - Awarded a NASA Student Fellowship in spring 2020 and a SURE scholarship in Summer 2020. Also secured a summer REU position at Miami University in Oxford Ohio for Summer 2021 (delayed from summer 2020 due to covid).

(MU S20) **Andrew Prostor** - Awarded a SURE scholarship in Summer 2020 to work in the Dr. McBride Laboratory, but was forced to decline for personal reasons.

(MU F19) **Ryan Vincent** - M.S. Physics from MU (S18-F19), employed after graduation at DUST Identity, Framingham, MA 01702, currently employed at kineoLabs as an Optical Systems Engineer.

(MU F19) **Kailee Christian -** Accepted to Marshall University's Doctor of Physical Therapy program for fall 2020. Unfortunately, Kailee had to decline the offer for personal reasons.

(MU F19) **The Society of Physics Students** - Most Improved Student Organization Award at MU.

(MU F19) **Jon Keaton** - Awarded a NASA Student Fellowship to work in the Dr. McBride Laboratory.

(MU F19) **Mckenzie Granata** - In fall 2019 she was awarded a NASA Student Fellowship to work in the Dr. McBride Laboratory.

(MU S19) **Emily Sutherland** - Accepted into several Physics PhD. Programs. Decided on Worcester Polytechnic Institute for fall 2019 class.

(MU S19) **Makayla Bailey** - Accepted into Marshall University's PharmD, Doctor of Pharmacy Program fall 2019 entering class.

(MU S19) **Nicole Lane** - Accepted into Marshall University's MS Forensic Science Program, fall 2019 entering class.

(KSU S18) **Benjamin Albert -** Accepted into the entering 2023 class of Dental School at the University of Las Vegas Nevada.

(MU S18) **Chase Preston -** Accepted to WVU School of Dentistry class of 2023.

(MU F17) **Michaela Howell** - Accepted into WVU's School of Pharmacy fall 2018 entering class.

(KSU F17) **Eric Heffern** - Accepted into Kansas University's School of Medicine's fall 2018 entering class.

(MU S17) **Audrey Shannon** - Accepted to Saint Mary's College, Indiana, fall 2017 entering class.

(MU S17) **Brandon Perry** - Accepted to Marshall University's Graduate program in Physical Therapy, fall 2018 entering class (started the program early in Summer 2018).

(MU S17) **Austin Banks** - Accepted to Marshall University's Graduate program in Exercise Science, fall 2017 entering class.

(KSU S17) **Joshua Haynes** - Accepted into the College of Veterinary Medicine at Kansas State University for fall 2017 entering class.

(KSU S16) **Paige Griggs** - One of the select few accepted into Kansas University's Scholars in Rural Health program gaining provisional 2-year early acceptance to KU School of Medicine for the entering class of 2018.

(KSU S16) **Joshua Warner** - Accepted into Kansas University's School of Medicine's fall 2017 entering class (1-year early decision program).

(KSU S16) **Amanda Curl** - Accepted into Kansas University's School of Medicine's fall 2017 entering class (1-year early decision program).

(KSU S16) **Greyson Spriggs** - Accepted into University of Missouri - Kansas City - School of Dentistry for the fall 2017 entering class.

(KSU F15) **Zach Marcolesco** - SMART scholarship for Service Program (a Department of Defense, DoD, workforce development program). Cybersecurity branch of the National Air and Space Intelligence Center at Wright-Patterson AFB, Ohio.

TEACHING EXPERIENCE

(Teaching Homepage: https://mupages.marshall.edu/sites/mcbrides/teaching-pages/#gsc.tab=0)

(S26) **University Physics I (PHY 211)** ~ A flagship service & required first course for the Physics Program
(F25)
(S25) **Lecture Professor -** Have taught the course consecutively for 20 semesters since fall 2016.
(F24) **Marshall University**
(S24)

(F23) **Multiple Sections** from fall 16 to spring 2025 ~ 12 – 50+ students each semester.
(S23) **Recommended text:** *University Physics by Young and Freedman, now using 15th Ed.*
(F22) *Prior to fall 2020, used Modified MasteringPhysics from Pearson.*
(S22)
(F21-F16)

Responsibilities: This is a 4-credit hour, lecture format, introductory physics course that requires the use of algebra, trigonometry, calculus, and vectors to solve real world problems. This course mostly focuses on Mechanics, Waves, and briefly touches on topics related to Thermodynamics (F16-S19). Post S19, thermodynamics has been removed due to the reduction to a 14-week semester and never returned when going back to a 15-week semester. This is the first half of a 2-part introductory series. PHY 211 provides "an introduction to physics for students of physical science or engineering, using calculus and vectors by components" ~ spring/fall 2017 undergraduate course catalog. I have had an open-door policy for office hours in addition to 6 scheduled hours per week for this class; however, office hours attendance was null in F16 and student desire to succeed was extremely low. In S17, based on the less than ideal performance of the F16 class (average Final Gain for each student of 20.8% on the FCI, Force Concept Inventory), I developed and implemented what I call HERD Hours (HH) to specifically increase the engagement of engineering students in the class and to increase their drive and motivation to succeed from day one. HH was undoubtedly a success pre-covid. In spring 2017, 13 students (50% of the final participating class), showed up at HH a total of 106 times for help, each staying 2-3 hours on a Friday afternoon. Though the students were different, the average Gain per student increased to 39.9% on the Post FCI in S17 compared to the 20.8% post FCI in F16. Likewise, in F17 the average final Gain increased to 42.5% on the Post FCI (over 50% of the students again showed up 151 times to HH)! Enrollment in S18 for PHY 211 soared; however, participation in HH decreased to less than 30% of the class showing up regularly, resulting in an average final FCI Gain of only 27.5% (also the days of the week when the course was scheduled may have played a role in the lower FCI performance). With the schedule of the course corrected so that the double lecture day returned to Wednesdays, the average final FCI Gain increased to 31.2% in F18 and to an awesome 45.9% in S19 (in S19, over 55% of the students showed up 146 times to HH). In Fall 2019 nearly 50% of students at some point showed up to HH 131 times, the average final FCI Gain was 34.5%. Due to COVID19, FCI pre and post assessments were not carried out in Spring 2020 through spring 2021. In fall 2021, HH was primarily only used by 3 students, though 42% of the class managed to show up at least one time totaling only 76 visits. The average final FCI Gain for this post virtual group was 31.2%. Similar results were obtained in Spring 2022 with an FCI gain of only 24.3% and only 3 - 4 students primarily using HH. With COVID19 concerns fading face-to-face events in fall 2022, HH participation has returned to high levels with 73% of the class attending HH at least once with a total of 118 visits by 16 students. FCI results for F22 show an FCI gain of 30.7%. In spring 2023, 83 % of the class showed up at least once to HH totaling only 202 visits, their FCI gain was 33.0%. Only 15 students showed up in Fall 2023 for 85 visits and their FCI gain was 24.9 %. Only 13 students showed up in Spring 2024 for 70 visits and their FCI gain was only 20.2 %. In Fall 2024, 5 students primarily used HH for 65 visits and their FCI gain being only 26.4 %. In Spring 2025 over a dozen students used HH regularly totaling 170 visits with an FCI score of 22.2%. In fall 2025 roughly a dozen students sporadically used HH totaling 56 visits and their FCI Gain was 18.9%. In spring 2026 6 students sporadically used HH totaling 26 visits and their FCI Gain was 36.7 %. Physics Education Research (PER) has shown that traditional lecture courses like PHY 211 consistently result in class average gains of only about 20% on the FCI (Coletta, 2007), my gains are considerably higher at an average of 30.5 % for 20 consecutive semesters. My average teaching evaluation scores for this class out of 5 points were **3.99/5.00** (F16), **4.57/5.00** (S17), **4.85/5.00** (F17), **4.22/5.00** (S18), **4.74/5.00** (F18), **4.42/5.00** (S19), **4.43/5.00** (F19), **4.59/5.00** (S20), **4.55/5.00** (F20), **4.12/5.00** (S21), **4.68/5.00** (F21), **4.35/5.00** (S22), **4.35/5.00** (F22), **4.46/5.00** (S23), **4.58/5.00** (F23), **4.46/5.00** (S24), **4.80/5.00** (F24), **4.84/5.00** (S25), **4.74/5.00** (F25), and **4.76/5.00** (S26).

Coletta, V. P., Phillips, J. A., and J. J. Steinert, Phys. Rev. ST Phys. Educ. Res. 3, 010106 (2007).

(S26) **College Physics I (PHY 201)**
(F25)
(S25)
(S24) **Lecture Professor**
(F23) **Marshall University**
(F22)
(F20) **9 sections** ~ 14 - 59 students. *College*
(F19) *Physics by Knight, Jones, and Field, 4e.*
(F16)

Responsibilities: A 3-credit hour, lecture format, introductory physics course that requires the use of algebra, trigonometry, and vectors to solve real world problems. Focuses on Mechanics, Oscillations, and Waves (this is the first half of a 2-part introductory series for life-science students). PHY 201 is "[a] course in general physics for all science majors with the exception of physics and engineering majors ~ fall 2016 undergraduate course catalog." Open door policy for office hours, + 6 scheduled hours per week. On the FCI, there were Gains of 30.0% in F16 and 28.6% in F19. Due to COVID 19 no pre and post assessments in F20 were possible. Herd Hours attendance in F19 was almost non-existent with less than 19% showing up only 26 times. With COVID19 concerns fading for face-to-face events in fall 2022, Herd Hours participation has returned to high levels with 90% of the class attending Herd Hours at least once with a total of 299 visits by 36 students leading to FCI gains of 21.0%. In fall 2023 only 63 visits to Herd hours were made, with only marginally more visits in S24 at 79 leading to gains of 35.1% and only 8.44%. In spring 2025 approximately 12 students made over 150 visits to Herd Hours, the class FCI score was 21.9%. In fall 2025 only a half a dozen students participated in Herd Hours with class FCI scores of 12.5 %. In spring 2026 10 students participated in Herd Hours totaling 66 visits with class FCI scores of 29.3 %. My average teaching evaluation score for this class out of 5 points were **4.538/5.00** (F16), **4.56/5.00** (F19), **4.06/5.00** (F20), **4.20/5.00** (F22), **4.78/5.00** (F23), **4.77/5.00** (S24), **4.46/5.00** (S25), **4.52/5.00** (F25), and **4.63/5.00** (S26)

(F25) General Physics I Lab (PHY 202)
(S25)
(F24) Laboratory Professor
(F23) Marshall University
(F22)
(F21)
(F20) 10 Sections ~ 5 - 26 students.
(S18) *General Physics Laboratory Manual,*
(F17) *PHY 202, Marshall University, 9th Ed,*
(S17) *Van-Griner. Lab manual written in-house.*

Responsibilities: A 1-credit hour, algebra, & trigonometry-based laboratory class. Designed to enhance student understanding of concepts discussed in the PHY 201/211 lecture sections. PHY 202 is a "laboratory to accompany PHY 201 or PHY 211, focusing on mechanics, concepts, and applications" ~ Spring 2017 undergraduate course catalog. Open door policy for office hours in addition to 6+ scheduled office hours per week. Significant undesirable changes about the structure of the lab format out of my control occurred in F22 resulting in a lower-than-normal evaluation score. My average teaching evaluation scores out of 5 points were **4.90/5.00** (S17), **4.62/5.00** (F17), **4.65/5.00** (S18), **4.39/5.00** (F20), and **4.48/5.00** and **4.67/5.00** (F21), **3.95/5.00** (F22), **4.52/5.00** (F23), **4.71/5.00** (F24), **4.49/5.00** (S25), and **4.26/5.00** (F25)

(F24) Advanced Laboratory (PHY 544/444)
(S23) Laboratory Professor
(F19) Marshall University
(F18)
Multiple sections, only a handful of undergraduate & graduate students enroll in this class at one time.

Responsibilities: A team taught 2-credit hour laboratory style class in 2018 and 2019. In 2023 I taught this class solo after

Dr. Wilson's retirement. Students perform hands-onmaterials science experiments and advanced optics laboratory experiments at the pace of 1 experiment perexperiments using correlated photons. Writing proper brief 2-3 weeks in groups of two or more students. Each labscientific reports is one of the main goals for the students will require addressing questions in the providedin this class. My average teaching evaluation scores for this instructions for each lab and will also require studentsclass out of 5 points were **4.52/5.00** (F19), **4.98/5.00** (S23), and to write up a brief lab report for each experiment. This**5.00/5.00** (F24). No evaluations were recorded for the (F18) laboratory incorporates fundamental solid state andclass.

(S24) **General Physics II Lab (PHY 202)**
(S23) **Laboratory Professor**
(S22) **Marshall University**
(S21)
(S20) **Multiple Sections** - 5 -25 students. *General Physics Laboratory Manual, PHY 204, Marshall University, 11th Ed, Van-Griner. Lab manual written in-house.*

Responsibilities: This is a 1-credit hour, algebra, and trigonometry-based laboratory style class. This course is designed to enhance student understanding of basic concepts discussed in the PHY 203 and PHY 213 lecture sections. PHY 204 is a "Laboratory to accompany PHY 203 or PHY 213, focusing on classical E&M, circuits, and optics." ~ Spring 2020 undergraduate course catalog. Open door policy for office hours in addition to 6 scheduled office hours per week. My average teaching evaluation scores for this class out of 5 points were **4.45/5.00** (S20), **4.12/5.00** (S21), **4.56/5.00** (average S22 - two sections), **4.18/5.00** (S23), and **4.74/5.00** (S24).

(S21) **Grad Independent Study (PHY 586) in Advanced Laboratory (PHY 544)**
Marshall University
Student: Jackie Sizemore

Responsibilities: A 2-credit hour independent study requiring the student to set up the necessary equipment for several experiments in the PHY 444 Advanced Lab and also required completion and presentation of a project on Quantum Cryptography.

(S21) **College Physics II (PHY 203)**
(S20) **Lecture Professor**
(S19) **Marshall University**

2 section ~ 12-15 students. *College Physics, A Strategic Approach, 4th edition, by Randall D Knight, Brian Jones, and Stuart Field*

Responsibilities: This is a 3-credit hour, lecture format, introductory physics course that requires the use of algebra, trigonometry, and vectors to solve real world problems. This course mostly focuses on Electricity and Magnetism and the interaction between these two phenomena called Electromagnetism, this course will serve as an introduction to Electronic Circuits, Geometric and Physical Optics, and Radiation & Nuclear Physics (this is the second half of a 2-part introductory series). PHY 203 is the "second half of an introduction to physics for students natural (life) sciences, using algebra and vectors by triangles" ~ 2018-2019 undergraduate course catalog. Open door policy for office hours in addition to 6 scheduled hours per week. My average teaching evaluation score for this class out of 5 points was **4.76/5.00** (S19), **4.64/5.00** (S20), and **4.61/5.00** (S21).

(S20) **Capstone (PHY492)**
Marshall University

Student: Jackie Sizemore

Responsibilities: A 2-credit hour capstone experience requiring the student to research and present on the "Mechanical Properties of Freely Suspended Self-Assembled Nanoparticle Membranes"

(F19) **Thesis Research (PHY 682)**
Research Professor
Marshall University

Student: Ryan Vincent

Responsibilities: "Synthesis of Silica Nanoparticles for Use in Self-Assembled Nanoparticle Membranes". Mentored Mr. Vincent on his synthesis of monodispersed silica spheres. He was able to effectively make 10-1000 nm monodispersed silica spheres.

(F19) **Independent Study (PHY 685)** **Research Professor**

Marshall University
Student: Ryan Vincent

"Developments Toward High-Flux Silica Nanosphere Substrates to Support Conforming Self-Assembled Gold Nanoparticle Monolayers for Applications in Size-Selective Filtration.

Responsibilities: Mr. Vincent used this research time to finish up his thesis work leading to his thesis titled:

(F17) Independent Study (PHY 485) in Advanced Laboratory (PHY 444)
Advising Professor
Marshall University

1 section, 1 student.

Responsibilities: This is a 2-credit hour independent study requiring the student to assist in setting up the necessary equipment for experiments in the new PHY 444 Advanced Lab and also assist in writing the manual to accompany experiments. All experiments will be worked through by the student to find errors in the manual and ensure all labs can be completed in a timely manner by junior students. This independent study course will cover the same solid state and materials experiments as PHY 444 (the quantum mechanics experiments will not be completed in this independent study).

(F16) Independent Study (PHY 485) in Classical Mechanics (PHY 330)
Advising Professor
Marshall University

1 section, 3 students. *Classical Mechanics by Taylor supplemented by Classical Dynamics by Thornton and Marion.*

Responsibilities: This is a 3-credit hour independent study course focusing on Classical Mechanics for upper level undergraduate and master's level students. Solving real world problems in this class requires the use of algebra, trigonometry, advanced calculus, vectors, and even more advanced mathematics. This independent study course covers nearly the same material as PHY 330, the course in which this independent study is modelled after. PHY 330 is "[an] intermediate study of the fundamental principles of statics of particles and rigid bodies, momentum and energy, dynamics of particles, harmonic oscillations, and wave motion ~ fall 2016 undergraduate course catalog." Open door policy for office hours in addition to 6 scheduled hours per week. My average teaching evaluation score for this class out of 5 points was **4.95/5.00**

(S16) General Physics II (PHYS 114)
Lecture Professor
Kansas State University

2 sections of ~ 250 students in total. *College Physics, by OpenStax College.*

Responsibilities: Traditional lecture with demonstrations, clicker questions, and worked examples. Individually raised funds for ~250 students in the class to tour Kansas State University's Nuclear reactor. I orchestrated a team of educators including 2 tenured faculty members as recitation instructors, a Director of Undergraduate Laboratories, 4 undergraduate lab instructors, 4 graduate students who assisted in grading, and a research technologist, who assisted and was responsible for the set-up of lecture demonstrations. Open door policy for office hours in addition to 6 regularly scheduled hours per week for students to ask questions. The class allowed me the opportunity to learn first-hand how the dynamics of a very large and extremely academically diverse student population works in a single class.

(F15) Engineering Physics II (PHYS 214)
Studio Laboratory Instructor
Kansas State University

3 sections ~ 40 students each. *Physics for Scientists & Engineers (with Modern Physics), by Tipler and Mosca 6th Ed.*

Responsibilities: Helped very hardworking engineering students with online Web Assign homework, lectured, helped students discover physics principles through group problem solving tasks using the Socratic Method. Graded group

assignments, was responsible for exam regrades,reviews for all ~280 enrolled students, all of which were provided non-required exam review sessions for allinvited to attend. I held an open-door policy for office hours in my ~120 students prior to each exam, plus held 2 largeaddition to six regularly scheduled office hours per week.

(S12) **Engineering Physics I (PHYS 213)**
Studio Laboratory Instructor
Kansas State University

2 sections ~ 40 students each. *University Physics with Modern Physics, by Young and Freedman, 13th Ed.*

Responsibilities: Similar to the responsibilities for the above **PHYS 214** I assisted students with MasteringPhysics homework, lectured on the physics of the lab, administered and graded quizzes, held open door and scheduled office hours, was responsible for exam regrades, and provided exam review sessions for all my students.

(F11) **General Physics 2 (PHYS 114)**
Recitation Instructor
Kansas State University
2 sections ~ 40 students each.
Physics by Giancoli, 6th Ed.

Responsibilities: Review misunderstood components of the assigned MasteringPhysics homework with the students as a whole by approaching the lecture material in a different way. Graded the assigned course homework. I held office hours as an additional resource for students.

(F06) **General Physics 2 (PHYS 114)**
Recitation Instructor
Kansas State University

1 section ~ 40 students. *Physics by Giancoli, 6th Ed.*

Responsibilities: I took an educationally diverse group of students, all with different levels of understanding and enthusiasm for the fundamentals of math and science and helped them understand basic physical concepts allowing them to succeed in their course, homework, and exams. Graded the course homework and also held extended office hours as an additional resource for many students.

(F05) **General Physics I (PHYS 211)**
Recitation Instructor
Univ. of Nebraska Lincoln

1 section ~25 students. *University Physics, Young & Freedman, 11th Ed.*

Responsibilities: Used a combination of "peer-based" instruction and traditional lecture methods to address conceptual difficulties and problem-solving issues with assigned MasteringPhysics homework. Graded additional assigned course homework and held office hours.

(F05) **General Physics I (PHYS 221)**
Laboratory Instructor
Univ. of Nebraska Lincoln

1 section ~ 25 students.
Lab manual written in-house.

Responsibilities: Provide a short lecture for students prior to beginning introductory physics experiments in mechanics, waves, heat, and light. Provide instruction as needed to assist in student understanding of concepts. Graded assigned laboratory experiments. Held office hours as an additional resource for the many students that required it.

(S05) **Electronic Instrumentation**
(S04) **Laboratory (PHY294)**
Laboratory Instructor
Miami University of Ohio

Multiple Sections ~12-15 students each.
Lab manual written in-house.

Responsibilities: Provided instruction for students on bi-weekly laboratory experiments. Laboratory experiments involved the use of electrical and electronic instruments, application of transducers and data acquisition equipment. Use of computer in analyzing data and interfacing computers with experiments was strongly favored. Graded assigned laboratory experiments. Developed the grading system for the laboratory experiments and held office hours.

(F04) **Phys. Lab I (PHY183)**
(F03) **Laboratory Instructor**
Miami University of Ohio

Multiple Sections ~ 24 students each. *Lab manual written in-house by Randall D. Knight.*

Responsibilities: In a laboratory environment, provide short lecture for students prior to beginning introductory physics experiments in mechanics, waves, and light. Provided instruction as needed to assist in students understanding of fundamental concepts. Developed the grading rubric for the laboratory, graded assigned laboratory experiments and formal reports, and held extended office hours for students.

(S03) Physics Tutor/
(F02) Undergraduate Teaching Assistant
(S02) Bloomsburg University, PA

Responsibilities: Tutored physics and non-physics majors for the university and privately in General Physics I and II, Intro. to General Physics I and II, Basic Physical Concepts, The Science of Sound, and Intro to Astronomy, plus all 100 level Physics classes. In 2003, I was an undergraduate TA for the advanced physics laboratory, assisted in the set-up, maintenance, and instruction. My lab notebook from previous years when I took the course as a student was given to the incoming assistant professor as a guide for the entire course.

CANCELATIONS DUE TO COVID-19 in 2020

The spring 2020 semester was an unprecedented academic semester with the global COVID-19 pandemic coming into the mainstream public eye at the beginning of March. Globally, the negative effects on teaching, learning by students, research efforts, dissementating reserch results, and recruiting efforts are currently immeasurable. Based on my excellent teaching evaluations at the conclusion of the spring 2020 - spring 21 semesters, my teaching in the eyes of the students appears to be uneffected for the most part by the switch to online teaching (Pre-spring 2020 **4.59/5.00** and beyond spring 2020 **4.55/5.00**). Below is a list of recruiting events that were cancelled in which I was looking forward to participating in, along with a list demonstrating how the pandemic has effected research experiences in my laboratory for students:

Recruitment:

- 03-14-2020 Upward Bound Motor Workshop, 10:15-11:15 am, to be hosted at Marshall University
- 04-16-2020 Lab Day, at Poca High School, put on physics demonstrations for K-5th graders
- 04-18-2020 Science Blitz, hosted at Marshall University, College of Science
- 04-21-2020 STEAM Knight, 4:00-7:00 pm, to be hosted at Cabell Midland High School
- No normal face-to-face events came on the radar from 4-21-2020 to 6-6-21, everything stopped.

Research Efforts:

- Three senior students, Jon Keaton, Mckenzie Granata, and Greg Hart were each cut short by five weeks on their research projects. Two of these students had NASA fellowships to work in my laboratory during the spring 2020 semester. These students were able to graduate at the end of the spring 2020 semester and thus the time they had for data collection in the lab cannot be replaced. Jeremy McCloud, who also had a NASA fellowship to work in my laboratory in spring 2020 and was equally cut short by five weeks.

Dissemenation of Research Results by McBride Research Group:

- 04-3/4-2020 Spring 2020 Ohio Section of the American Physical Scoiety, to be held at John Carroll University, University Heights, OH. Abstract was submitted with the expectation that I would present a talk titled "Nanoparticle Functionalization of Commercial Filtration Membranes for Water Purification"
- 04-17-2020 Marshall University Research Expo, minimum of 3 posters to be presented
- 04-17-2020 MU Physics Department Convocation Day, minimum of 3 student talks given.
- 06-25-2020 Institute of Water Security and Science Symposium. Theme: Advances in Water Resource Science and Management in West Virginia, and the Northeastern U.S. A poster and possibly a short talk were to be provided as the Principal Investigator. Thursday, June 25, 2020 from 5:00–7:00 p.m. Erickson Alumni Center, 1 Alumni Drive, Morgantown, WV 26505).

MISCELLANIOUS

(04/10/2025) Nominated by peers to be on the 2025 Provost search committee.

(09/23/2024) The John Marshall Leadership Fellows Program – Applied for Spring 2025, but was not accepted. Encourage you to apply again in the next round.

(F18 - Present) **Graduate Faculty Status -** My original application for graduate faculty status was approved by the Dean of the College of Science, then Dr. Charles Somerville, the Graduate Council, and the President of the University. Initially started 9/25/18, and have continually applied, this 'redbook' status is in effect until 12/15/28, when I will reapply.

(F16 – S21) **Digital Measures (and OCR Tables) -** I have diligently completed both the OCR Tables and Digital Measures every year close to, if not always before the given/requested Admin due date with the exception of being excessively late in spring 2020 and spring 2021 both for unfortunate personal reasons. Beyond brief discussions with my chair in some cases for clarification on point values in the OCR activity tables, I have never received feedback of any kind directly related to any generated OCR numbers based on the planning pages percentages or Annual Reviews. In fact, the OCR number was never explicitly calculated or discussed after completion of the tables. Feedback on how my OCR number, whatever it may have been, compared to others in the department, or departments within CoS (and the colleges/departments across the university, if they did something similar), would be helpful to provide some meaning to the number. Overall, from my experience, not much emphasis seems placed on the OCR number that is generated, just completing the OCR tables and Digital Measures seems required. I diligently keep an updated short and long CV, thus Digital Measures provides me no direct benefit, though it may assist others in data collection. Outstanding positive feedback on performance was provided in the mid-tenure review process in 2018 and tenure process in spring 2023, which was very helpful. Following Spring 2021, OCR scores were no longer used.

(06/16/2021) **Herd Hours -** In the continuous effort to disseminate knowledge gained from the successful creation and development of Herd Hours, approval for publication gains momentum with Institutional Review Board approval to use data.

(F18 - S19) **Marshall University College of Science & Department of Physics Come Together for Equiptment Purchase -** The acquisition of a research grade Atomic Force Microscope (AFM) that is portable and that can be easily transported and taken to local high schools for recruiting and outreach events, teaching, and research was welcomed (**list price of $60,845, paid $49,545**). The College of Science and Physics department would come together to acquire the instrumentation with the Physics Department paying 20% of the total costs. For this acquisition, I completed all necessary sole source documentation needed by the Purchasing Office, including providing quotes from four other competitors, negotiating prices with companies, and writing the department sole source letter to be signed by the department chair. The instrument made its debut during the spring 2019 semester. Also, I organized a company supported training session for all faculty and students within the Physics Department wanting to use the instrument in Spring 2019. Originally, I was responsible for training all new users, faculty, and students, and was the official faculty caretaker of the instrument since its arrival in Spring 2019. This instrument has been used for recruiting and will hopefully use more heavily used by students working in my laboratory; **it is open for use by faculty/students in the Physics Department and College of Science who receive proper training.** Seeking training from me unfortunately has not been followed for newer users, thus I cannot guarantee the instrument's safety and longevity.

(10/05/2018) **Physics Department Chair Substitute -** At the request of the Physics Department Chair at the time, I filled in at the Dean and Chair's Meetings for the College of Science while they were incapacitated due to unfortunate health reasons. I diligently conveyed important information discussed to the chair as soon as possible.

(09/21/2018) **Physics Department Chair Substitute -** At the request of the then current Physics Department Chair, I filled in at the Director and Chair's Meetings for the College of Science while they were incapacitated due to unfortunate health reasons. I diligently conveyed important information discussed to the chair as soon as possible post meeting. It was at this meeting where I conveyed the physics department's desire to acquire a portable Atomic Force Microscope for teaching, recruitment, and research. In the end, a $49,545 combined investment by the Department of Physics and the College of Science was put forth for the instrument (list price of $60,845).

TRAINING – for HIGHER EDUCATION, RESEARCH, & ENVIRONMENTAL HEALTH & SAFTEY

(All certificate bearing programs or those requiring a successful completion test)

(S12, F17-S28)	National Science Foundation: Responsible Conduct of Research
(S21 - S27)	National Science Foundation: Human Research - Behavioral & Social Science Research
(F23, S26)	Search Committee Training
(F24-F25)	Information Security Online Training Course
(S25)	Critical Thinking Affiliation Designation Training for Course Development (CORE I)
(F24)	Mandatory Reporting Training from the Association of Title IX Administrators
(S23)	Building Supportive Communities: Clery Act and Title IX (Full Course) – Vector Solutions
(F23)	Security Awareness Training Program: Marshall University IT
(S20 -F22)	Bridges | Taking Action - Title IX/Wellness and Safety Training/Required for all Faculty (by EVERFI)
(F20)	Marshall University Managing Bias Training
(S20)	Marshall University COVID19 Training
(F20)	Marshall University Data Security Training
(S19)	QPR (Question, Persuade, and Refer) - Student Suicide Prevention Course
(F18)	Harassment and Discrimination Prevention (by EVERFI)
(F17)	M.U. Unlawful Harassment Prevention for Higher Education Staff
(F17)	M.U. Preventing Discrimination & Sexual Violence: Title IX VAWA & Clery Act for Faculty & Staff
(F17, F18)	M.U. Defensive & Safe Driver Training
(S17)	Active Shooter
(S17)	Chemical Safety and Awareness & Hazard Communication Training
(S17)	Fire Safety, Power Tool Orientation, Miter Saw Safety, and Table Saw Safety

RESEARCH EXPERIENCE GAINED FROM PRIOR APPONTMENTS BEFORE MARSHALL

(2012-2015) University of Chicago, The James Franck Institute, Chicago, IL (Postdoctoral)

Focused on synthesis & self-assembly of various 5-10nm gold core nanoparticles (NPs) to make NP based structures for mechanical testing and water filtration applications. Investigations led to several collaborative publications in peer reviewed journals between researchers at Argonne National Laboratory and The James Franck Institute, University of Chicago. NP structures focused on spanning 5nm thick singular monolayers of gold nanoparticle

superlattices over different porous substrates. NP synthesis skills were acquired on-site at Argonne National Laboratory from a leading synthesis scientist. Investigations into these systems have led to a patent [No. - WO2013074669 - Nanoparticle-Based Desalination and Filtration System] and numerous publications in peer reviewed journals.

- Acquired expertise to routinely and consistently make 5nm gold core NP with various organic capping ligands for experiments. Additionally, 10nm NPs were made through salt reduction synthesis techniques. Also, synthesis techniques to make 20-50nm pure silica NPs with efforts to also encapsulate CdSe Quantum were acquired.
- Logged countless hours operating Transmission Electron Microscopy and Scanning Electron Microscopy systems. TEMs: Joel JEM-2100F, FEI CM30T, FEI Tecnai, and FEI Tecnai Spirit. SEMs: FEI NanoSEM for imaging & Hitachi S-2700 for electron beam writing.
- Gained experience using electron beam writing and reactive ion etching to make 500nm-5um holes in 100nm thick silicon nitride.
- Mentored a graduate student who needed the skills of AFM imaging techniques and performing nano-Newton force measurements using AFM (Asylum Research MFP-3D) on nanoparticle structures.

(2006-2012) Kansas State University, Manhattan, KS (Ph.D.)

Research relied heavily on the use of atomic force microscopy (AFM) to study surface forces. Key investigations led to numerous peer reviewed publications on the slip length parameter, spring constants of nano-wires, determining the line tension parameter at the three-phase contact line of nanoparticles at three phase interfaces, and a new spring constant calibration method.

- Extensive experience in AFM imaging and performing sub-nano-Newton force measurements using colloidal probe AFM and non-colloidal probe AFM (Asylum Research MFP-3D).
- Developed a novel new spring constant calibration method for the large diameter colloidal probe AFM scientific community.
- Fabrication of custom 55-micron diameter colloidal probes of extremely high-quality low surface roughness desperately needed for accurate and precise colloidal probe AFM measurements.
- Expertise acquired for fabrication of hydrophobic defect free n-alkylsilane layers using wet-chemistry techniques with remarkably low contact angle hysteresis for slip length measurements.
- Extensive machining experience for fabricating additional research components for the AFM including an environmental control chamber incorporated into the base of the AFM.
- Acquired experience using Transmission Electron Microscopy (TEM) techniques (Phillips CM100).
- Characterization of thin films using contact angle and contact angle hysteresis measurements and long rang microscope systems (First Ten Angstroms FTA100).
- Acquired synthesis skills to produce pure silica particles between ~60-500nm.
- Physical vapor deposition of thin films using aluminum (Denton systems).
- Acquired IGOR Pro software programming skills.
- Presented research at both national and regional conferences.

(Spring 2009) Max Planck Institute for Dynamics and Self-Organization Göttingen, Germany

Research efforts were devoted to studying the dynamics of liquid polystyrene (PS) during wetting transitions in topographical structured substrates using temperature controlled atomic force microscopy (AFM). This work led to a collaborative publication between institutions. The goal was to observe how the unstable PS filaments break up, either by spinodal or nucleation de-wetting; under the correct de-wetting conditions, the determination of the slip length parameter at the solid-liquid interface can be determined.

- Deposition of liquid PS solutions into silicon triangular grooves was achieved via spin coating. Filaments of solidified PS were made either to be stable or unstable depending upon groove geometry, wetting properties of the substrates, and temperature of the system.
- Time dependent, in-situ AFM imaging, of single micron-sized triangular groove PS filaments under applied heat using Vecco Multimode temperature-controlled AFM stage was achieved.
- The dynamics of the instability in all AFM experiments was captured and nucleation de-wetting of the PS filaments was observed and attributed to defects in the silicon substrates.
- Increased skills needed to obtain extremely detailed sub-nanometer height resolution images of hydrophobic silane films deposited on three-dimensional grooved silicon surfaces.
- Used contact angle and contact angle hysteresis measurements and long rang microscope systems (First Ten Angstroms FTA100) to increased expertise on how to produce and characterize hydrophobic defect free silane layers critical to the success of many surface science experiments.

(2003-2005) Miami University, Oxford, OH (M.S.)

Perturbed angular correlation spectroscopy (PAC) was used to detect displacive phase changes in synthetic zirconium and hafnium silicate, ZrSiO4/HfSiO4; these phase changes are related to the purity of the sample. These research efforts resulted in two peer-reviewed publications.

- Used a custom-built PAC to understand how radioactive probe atoms interact with surrounding electric and magnetic fields of other atoms in the host crystal lattice structure and how this allows for the determination of the crystalline structure of the host mineral.
- Using PAC, characterized the dependencies of phase transition on impurity levels in synthetic hafnium silicate and synthetic zirconium silicate.
- Gained Experience with X-ray diffraction (XRD) spectroscopy useful for additional characterization of samples.
- Investigated naturally occurring zircon with small impurity levels using PAC.
- Increased knowledge in sample preparation methods of crystals via the sol-gel method of synthesis.
- Acquired LabVIEW programming skills.
- Experience in designing, fabrication, assembly, and machining of parts for a custom sample preparation furnace making it capable of safely reaching a constant temperature of 1500ºC for extended periods of time.
- Research has been presented at regional, national, and international conferences.

(2002-2003) Bloomsburg University, Bloomsburg, PA (B.S.)

A custom-designed in-house fabricated environmental chamber was used to maintain precise control of corona discharge environments. With the discharge environmental parameters fixed, wear on copper emitters during corona discharges was investigated under different types of discharges environments. Research was presented at a national conference with a resulting publication in the peer reviewed conference proceedings.

- Acquired extensive machining experience for fabricated environmental control chamber for corona discharges, extensive AutoCAD 2000 experience, gained experience in operation of Scanning Electron Microscope (SEM) systems with energy dispersive X-ray spectroscopy.

REFERENCES

Dr. Xiao-Min Lin, Argonne National Laboratory†	Office: 630-252-4447	xmlin@anl.gov
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Dr. Herbert Jaeger, Miami University of Ohio† ‡	Office: 513-529-5515	jaegerh@MiamiOH.edu

† **Research Mentor** ‡ **Teaching Mentor**

LETTERS OF RECOMMENDATION/SUPPORT FOR PROMOTION AND TENURE TO ASSOCIATE PROFESSOER:

One-page written evaluation of instructional performance – by Dr. Michael Norton

As one of the people I have identified with here at Marshall as a faculty mentor for me, I had requested Dr. Norton to write me a confidential letter of recommendation focused on my instructional performance as allowed in section V.,

subsection (m). Dr. Norton randomly participated multiple times in observing both my PHY 211 and PHY 201 classes in fall 2022. Since his letter is confidential, it will be placed in the correct location for review in my portfolio by the chair of the physics program. This letter by Dr. Michael Norton, focused specifically on my teaching, was sent to the physics program chair via email on or before 10/21/2022 and should be included in my P and T review.

Additional Confidential Letter of Recommendation – by Dr. Michael Norton

A confidential letter of recommendation has been written by Dr. Michael Norton, separate from his teaching specific evaluation letter in the previous section. This additional letter from Dr. Norton letter has been provided via email to the physics program chair on 11/16/2022 and should be included in in my P and T portfolio. Since his letter is confidential, it will be placed in the correct location in this portfolio by the program chair of the physics. This letter is likely to touch on topics related to my research activities and interactions with students in the lab.

Eleven Additional Confirmed Letters of Recommendation and Support - by members of both the on & off campus communities

A combination of eleven members from either the on or off campus communities have confirmed they have submitted letters of recommendation/support to the physics program chair via emails sent on the below dates. These letters will likely touch on topics related to service and outreach. Since these letters are all confidential, they will be placed in the correct location in my P and T portfolio by the chair of the physics program. Listed chronologically in order of confirmation of date emailed.

(1) Eugene Lacy - email sent, 10-28-22, Interim Director/ College Access Adviser, Upward Bound, MU

(2) Debbie Curry, J.D. & Jennifer Plymale, M.A. - email sent, 11-9-22, Coauthored Letter

- D.C. is Program Director of Rural Outreach and Development, Robert C. Byrd Center for Rural Health, JCESOM
- J.P. is Associate Dean, Admissions Director, Robert C. Byrd Center for Rural Health, JCESOM

(3) Dr. Fred Smith - email sent, 11-10-22, son of former MU President Stewart Harold Smith (1946-1968)

(4) Tina Cartwright - email sent, 11-15-22, Professor, College of Education & Professional Development

(5) Deana White - email sent, 11-15-22, West Virginia Alliance for STEM and the Arts (WV All STAR)

(6) Dr. Brad Conrad - email sent, 11-16-22, National Director, Society of Physics Students & (ΣΠΣ), American Institute of Physics

(7) Dr. Monica Brooks - email sent, 11-16-22, MU Dean of University Libraries

(8) Dr. Andy Hermansdorfer - email sent, 11-17-22, MU Director of Student Involvement & Leadership, Division of Student Affairs – LEAD Center

(9) Claire McCarthy - email sent, 11-17-22, St. Joseph Central Catholic High School teacher, Huntington

(10) Dr. Suzanne Strait - email sent, 11-18-22, Associate Director of Science & Research, West Virginia Higher Education Policy Commission

(11) Leann Haines - email sent, 11-18-22, Huntington Middle School teacher, Huntington