

Department of Physics and Materials Science

Summer 2023 Newsletter

Dear friends, colleagues, and alum,



Summer is usually the time to slow down, relax, and take it easy but our faculty and students use summer as an opportunity to rev up their research and scholarly activities. Read on to learn about the amazing work that our faculty, students, and alum are involved with!

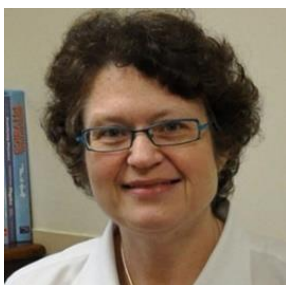
Firouzeh Sabri, Professor-Chair

Physics Faculty Members Awarded Hubble Grants

Dr. Francisco Muller-Sanchez has been awarded time with the Hubble Space Telescope during Cycle 31 to perform the project: "Probing SMBH/Galaxy Co-Evolution with Dual and Binary AGN." Dr. Muller-Sanchez is going to perform the first morphological study of the ionized gas in confirmed dual active galactic nuclei (AGN) and the only confirmed binary AGN to date, the radio galaxy 4C+37.11. This program will deliver a legacy of morphological data of dual AGN for studies of galaxy evolution.

UofM DPMS faculty member **Dr. Benjamin Keller** has recently been awarded a NASA Hubble Cycle 31 Theory grant submitted to study the influence of ionizing radiation from massive stars in dwarf galaxies, along with Co-PI Dr. Ferah Munshi of George Mason University. This grant will support Dr. Keller's research using simulations to understand the formation and evolution of galaxies, to unravel their history and help shed light on the mysterious nature of dark matter.

Two Faculty Members Promoted



It is a pleasure to announce that **Dr. Samuel Mensah** and **Joanne Rhodes** were both promoted to the level of Associate Professor of Teaching. This is a long-overdue recognition of their valuable contributions to, and efforts in, teaching, service, and outreach. Congratulations to both! It is a joy to recognize two outstanding colleagues.

Physics REU Hosted at UofM



This summer the DPMS again hosted Research Experiences for Undergraduates (REU) in Multidisciplinary Physics on the main campus. Six students

successfully performed research supervised by DPMS faculty mentors. At the end of the 10 weeks, the students have completed an entire research cycle: learning about a research topic and literature review, carrying out measurements and calculations using state-of-the-art techniques, and analyzing data and interpreting the implications of their findings in real-world situations. REU participants then summarize their research activities and conclusions in a presentation and an article published in the UofM undergraduate journal *QuaesitUM*.



The students also learn about careers in science and other fields of physics research. The REU students'

hard work earned them some time off to enjoy the Planetarium (and dark lights) at the beautiful UofM Lambuth campus in Jackson, Tennessee.

Physics Faculty Supports Local Competition

Lucas Wade, an assistant professor of teaching at the UofM, served as an Event Supervisor at Southwest Union Campus for Middle and High School Students. These events, **Sounds of Music** and **It's About Time**, involved students com-

peting in knowledge regarding music and time as well as the actual construction of musical instruments and time-keeping devices. It is wonderful to see the interest in basic physics applied to music, time, and technology.

Physics Alumni Spotlight Series



We have recently featured Mary Drouin, an UofM Alumna, as she shares her experiences as a physics student and her work in jet propulsion utilizing acoustics, optics, fluid dynamics, and more. Please check

out her profile at memphis.edu/physics/alumni_spotlight/marydrouin.php.

Student Spotlight



Joseph Anthony Duncan, Jr. (mentored by **Dr. Shawn Pollard**) participated in the selective Department of Energy Summer Undergraduate Laboratory Internship. During this intensive 10-week program, Joseph conducted research at Brookhaven National Laboratory

within the Silicon Sensor Group. His project focused on the fabrication and testing of low-gain avalanche diodes.

Physics Summer Camp 2023

The Physics Summer Camp for high school students took place June 12 – 16 in Manning Hall. During this activity-filled week the camp participants learned about physics and how it applies everyday life and careers. The attendees had fun making “virtual holograms” to make an image appear three dimensional (referred to as Pepper’s Ghost and commonly used the production of movies), audio speakers, and attending lectures.



Faculty and students testing the Solar Telescope.

Looking forward to hosting another group next summer!

Camp participants also toured the research laboratories and the Memphis Voyage Solar System as well as observed the Sun (safely) through a 10-inch Dobsonian telescope equipped with a Solar filter. Looking

Physics Demonstrations Featured in Manning Hall

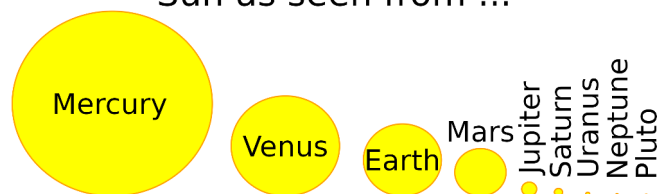


Recently, new interactive demonstrations have been added to Manning Hall. Among them are an acoustic levitator (pictured), which harnesses the power of acoustics to levitate (light) objects. The suspended balls appear to simply float in the air—truly a remarkable experience.

Other displays illustrate physical principles such as the distinguish between mass and weight, the power of polarizing materials, the wonders or electricity and magnetism. We want to thank **Lucas Wade** for his work on these displays. For more information, please visit memphis.edu/physics/demonstrations/index.php.

Tours of Voyage Solar System

Sun as seen from ...



Free guided tours of the Voyage Solar System—led by members of the DPMS—are now available. Learn about each object, and the Solar System as a whole while experiencing an accurately scaled model (10 billion-to-one). For example, the Sun’s apparent size scales in the model as it does in the actual Solar System. Scan the QR code to schedule your tour today!



Physics Faculty Ready for Fall 2023



Physics faculty enjoying a meal during the department’s faculty retreat in preparation for the upcoming semester. Excited to welcome back all students!

For up-to-date information, please visit our **News** page at memphis.edu/physics/news/index.php

For content-related questions, please contact Dr. G. Borstad at gustav.borstad@memphis.edu.