

# Department of Physics and Materials Science Holiday 2022-2023 — Winter Newsletter

Dear friends, colleagues, and alum,



2022 has been an incredible year in terms of scientific breakthroughs and discoveries. We witnessed a return to the Moon with Artemis I, the launch of JWST and its 1<sup>st</sup> images providing us with a glimpse into the universe's

past, and the achievement of fusion, to name a few. This newsletter captures many of our recent department highlights and our faculty's accomplishments and contributions. We strive to create and nurture an environment for excellence in education and state-of-the-art research. I invite you to explore our department's news and connect with us. Along with such advancements, we also acknowledge and deeply mourn the loss of many innocent lives across the world. On behalf of myself and our department, I wish you and your loved ones the very best for the holiday season.

Sincerely,

*Firouzeh Sabri, Professor-Chair*

## Dr. Benjamin Keller Invited to Give a Lecture at Princeton



**Dr. Benjamin Keller**, an assistant professor in DPMS, gave an invited lecture on Star Formation/ISM Rendezvous (SFIR) on Dec. 10th, 2022 at Princeton & the Flatiron Institute's Center for Computational Astro-

physics. Congratulations to Dr. Keller!

## UofM Professor Gives Talk at Museum of Science and History



**Dr. Francisco Muller Sanchez**, an assistant professor in DPMS, presented during the Museum of Science and History (formerly, the Pink Palace Museum)

Wonders of the Webb Telescope event. Dr. Muller Sanchez has been granted time to utilize the recently launched James Webb Space Telescope in his research on supermassive black holes and active galactic nuclei.

## Dr. Shawn Pollard Published Article in High-Impact Nature Materials



**Dr. Shawn Pollard**, an Assistant Professor in DPMS at the UofM, published an article in March 2022 in the prestigious, high-impact journal *Nature Materials*, which boasts an impact factor of 49. The article, en-

titled "Building skyrmions through frustration," appeared in journal with an impact factor of 49. The topic explores mechanisms and materials for the next-generation data storage.

## DPMS Graduate Student Selected for European School on Magnetism



**Liyan Jacobs**, a Ph.D. student, was selected to participate in the annual 2022 European School on Magnetism. The event is organized by the European Magnetism Association and is open to young scientists worldwide.

The event's duration is 11 days and lectures and activities focused on applications of magnetism to sustainable development. Liyan was the only participant from the United States.

## DPMS Students Acknowledged at UMRF 5<sup>th</sup> Anniversary Celebration



Graduate students **Mason Ruby**, **Hunter Gore**, and **Kyle Edwards** along with Dr. Firouzeh Sabri attended the 5<sup>th</sup> Anniversary Celebration of the University of Memphis Research Foundation (UMRF) Ventures Inc. DPMS students have excelled at providing high-quality customer service based on their dedication and technical expertise.

## REU Students Enjoy Meeman Biological Station Getaway



This summer the DPMS again hosted Research Experiences for Undergraduates (REU). Seven students successfully engaged in research with faculty mentors. In the midst of a busy summer of research, some REU students still found some time to relax away from the lab benches and computational desks and enjoy some fresh air at the beautiful Meeman Biological Station. REUs provide a great opportunity for students to gain research experience during the 10-week program.

## DPMS Students Present Research at SESAPS 2022

The UofM DPMS was well-represented at the 89<sup>th</sup> Annual SESAPS Meeting held at the University of Mississippi on November 13-15, 2022. Among those attending and presenting were **Afšana Sharmin** (graduate student, advisor **Dr. Muhammad Jahan**), **Bryson Krause** (graduate student, advisor **Dr. Thang Hoang**), **Joseph Duncan** and **Kyle Lam** (both undergraduates, advisor **Dr. Shawn Pollard**), and **Sagar Ghimire** (graduate student, advisor **Dr. Firouzeh Sabri**).

## DPMS Awarded 2<sup>nd</sup> Place at 2022 Discover Your Major Day

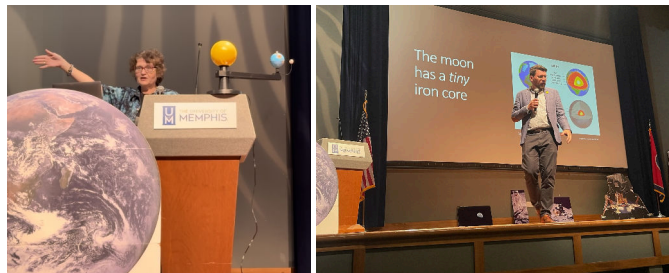


DPMS was recognized for its interactive and engaging physics displays at the annual *Discover Your Major Day* with a second-place award. The event provides an opportunity for all UofM students to learn more about the different majors offered. Many DPMS graduate students and faculty took turns sharing their love and positive experiences in physics with the UofM students seeking a department to call home.

## DPMS Celebrates Space Week with UofM Campus School Students

During Space Week 2022, faculty members of DPMS shared their knowledge of space exploration and astronomy with students from the UofM Campus School on Oct. 5<sup>th</sup>. DPMS Professors **Joanne Rhodes**, **Firouzeh Sabri**, and **Ben Keller** gave brief presentations on space exploration, astronomy,

and space materials. Former **NASA Flight Controller Bill Weppner** shared information about past lunar missions and expressed his excitement for the future missions. The students at the Campus School demonstrated their enthusiasm and investment in the effort by designing tools and items that would be required to establish a successful settlement on the Moon. These designs were turned into 3-D printed objects.



## DPMS "Launches" Award-Winning Gingerbread Structure



DPMS was awarded first place in the category of *Innovative Use of Materials* in the gingerbread house contest hosted by Human Resources and the R. Brad Martin Wellness Center for all UofM employees. The gingerbread structure celebrates the recent Artemis launch. This structure was designed and built by DPMS faculty and staff including **Courtney Paulino**, **Tzipora Hunter-Davis** and Professors **Samuel Mensah**, **Shawn Pollard**, and **Firouzeh Sabri**. Congratulations!

## Faculty Celebrate Semester End



DPMS faculty celebrated the end of the Fall semester with a meal at Casablanca. It was a joyful occasion to celebrate the achievements of the past semester, to wrap up a successful year and to begin to dream about the coming year.

Thank you for being a part of the UofM Physics and Materials Science family!

For up-to-date information, please visit our News page at [memphis.edu/physics/news/index.php](http://memphis.edu/physics/news/index.php).

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