

## Message from the Chair

I hope this letter finds you well. I know that I am enjoying the cooler weather that fall brings as we move in the middle of the Fall 2021 semester. We have had a lot of changes in the Physics Department. I don't know about you, but I find that as we return to what we considered "normal" before the pandemic, the things that I did during the pandemic are blotted from my mind. I keep referring to "last year" only to realize that I am actually referring to the "last time" an event occurred, and that was two years ago! This newsletter recaps some of the major milestones from 2020 and 2021. We would love to hear what you have been up to lately, or even better, to see you in person when you visit Waco.



Dr. Lorin Matthews,  
Chair of the  
Department of Physics

Best wishes,  
Lorin Swint Matthews, BS '94, PhD '98

## Homecoming Reception

Please join us on Saturday, October 16 after the Baylor Homecoming Parade (around 10 AM) on the third floor of the Baylor Science Building, D311. We very much would like to meet and reconnect with you. If you are able to attend, please send me a note via email ([Lorin\\_Matthews@baylor.edu](mailto:Lorin_Matthews@baylor.edu)) by October 11.

## Faculty Come...



Dr. Andrew Brinkerhoff  
Associate Professor  
Experimental high energy  
research at CERN



Dr. David Hilton  
Assistant Professor  
Ultrafast laser spectroscopy to  
characterize insulator-to-metal  
phase transitions



Dr. Jared Fier (PhD '21)  
Part-time Lecturer  
Gravitational Waves and  
Cosmology

## ... Faculty Stay ...

*celebrating 5-year anniversaries in 2021*



Dr. Walter Wilcox  
35 Years (1986)



Dr. Gerald Cleaver  
20 Years (2001)



Dr. Jeff Olafsen  
15 Years (2006)



Dr. Barbara  
Castanheira-Endl  
5 Years (2016)



Professor Emeritus  
Dr. Greg Benesh  
1982-2020



Professor Emeritus  
Dr. Wickramasinghe Ariyasinghe  
1988-2021

## ...Faculty Go

Dr. Benesh (38 years of service) and Dr. Ari (33 years of service) retired in 2020 and 2021, respectively. They are now enjoying their new roles as Professors Emeriti.

## Physics Student Enrollment Growing

This year we enrolled some of the largest undergraduate and graduate classes this century! We have 16 new graduate students from nine countries, bringing the total number of students in our graduate program to 45. The past year also saw our largest class of PhD students, with 13 students receiving their doctoral degrees in physics from August 2020 through August 2021.

The New Student Experience course, “Finding Success in Physics”, has twenty-two freshman students enrolled. There are 71 undergraduate students who have declared a major or minor in astronomy, astrophysics, and physics, and this number doesn’t include those who are in special programs, like University Scholars, who have a physics concentration.

## Endowed Chair in Physics

On April 15, 2021, Baylor University announced an estate gift from John and Eula Mae Baugh, creating an endowed chair in physics. The Eula Mae and John Baugh Chair in Physics, which will receive matching funds through the Baylor Academic Challenge, will provide faculty funding within the department of physics and focus on innovative research and teaching in the area of materials science.

## Alumni Notes

The *New York Times* recently featured the research of Jeremy Smallwood, BS '15. GW Ori is a triple star system surrounded by two disks of gas and dust. The outer ring is oddly tilted at an angle of  $38^\circ$ . Jeremy was the lead author on a study which showed that a planet the size of Jupiter is the most likely object to create this feature. This means that GW Ori is the first system discovered to have a circumtriple planet. Jeremy recently received his PhD from UNLV and has started a post-doc in Taipei, Taiwan. Learn more at:



<https://www.nytimes.com/2021/09/28/science/triple-sun-planet.html>

GW Ori: circumtriple planet and rings, *MNRAS*, 508(1), 392-407, 2021



Lori Scott, BS '16, is a graduate student at Auburn University. Her doctoral research is making use of the Plasmakristall-4 microgravity lab on board the International Space Station. Lori got to travel to the control center in Toulouse, France, to direct the Russian Cosmonauts conducting the experiment. A team of scientists from Auburn, Baylor, and Wittenberg University are collaborating with Germany's DLR, ESA, and ROSCOSMOS (Russian Space Agency) on this project.

Garrett Williams, BS '19, won the APS History of Physics Essay contest. Garrett is currently a second-year PhD student in the Department of Physics and the Illinois Quantum Information Science and Technology at the University of Illinois at Urbana-Champaign. His essay, "Lewis



Latimer: The Shadow Behind the Light Bulb", appeared on "The Back Page" of the March 2021 *APS News*. You can read his essay [here](https://www.aps.org/publications/apsnews/202103/backpage.cfm) (<https://www.aps.org/publications/apsnews/202103/backpage.cfm>).



## Awards

Caleb Smith PhD '20 – TSAPS graduate student presentation award for his talk “Search for Super-symmetric Top Quarks in the CMS Run 2 Data Set”



Chris Madrid PhD '20 – 2019 HCAL Achievement Award from the CMS Collaboration at CERN Switzerland for his extensive contribution to several aspects of the CMS upgrades



Chuchu Xiang PhD '20 – 2020 Baylor University STEM Outstanding Dissertation Award, “Modeling Dust Coagulation and Chondrule Dust Rim Growth in a Protoplanetary Disk”



Dr. Howard Lee – 2019-2020 Outstanding Faculty Award for Scholarship (non-tenured tenure-track)

Dr. Kenichi Hatakeyama – 2019-2020 Outstanding Faculty Award for Scholarship (tenured faculty)



Dr. Lorin Matthews – 2020 URSA Mentor of the Year in STEM in recognition of her dedication to undergraduate research

## Featured Research



Dr. Zhenrong Zhang's research was recently featured as part of Baylor's celebration of National Research Administrator Day. Dr. Zhang's research interests are in two areas. One is energy and environment-related catalytic chemical physics, specifically, understanding the mechanisms and dynamics of catalytic reactions on various catalysts (i.e. metal oxides and two-dimensional materials) by using scanning probe microscopy (SPM) coupled with Raman spectroscopy. The other is in plasmonic and photonics. Her recent research interest is to develop nanoscale chemical imaging techniques for the investigation of the structure-functionality of the materials in realistic conditions. These hybrid techniques integrate plasmonics, fiber optics, and nanoscale surface imaging.

For more Physics News, please visit our webpage:

[www.baylor.edu/physics/news.php](http://www.baylor.edu/physics/news.php)

We would love to hear from you! Please send us an e-mail ([Lorin\\_Matthews@baylor.edu](mailto:Lorin_Matthews@baylor.edu)) or call 254-710-2511