

WVU astrophysicist to put own spin  
on first-of-its-kind gravitational  
wave detector with NASA support

Marshall University, state and  
federal partners break ground for  
Institute for Cyber Security

\$50 million for new agriculture lab  
at West Virginia State University

# NEURON

Science, Technology & Research in West Virginia

*Volume 20 Issue 1*

## Look to the Stars

*Two renowned astrophysicists  
build careers and lives  
in West Virginia*





# NEURON

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VOLUME 20 ISSUE 1

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## ABOUT

STaR Division: Science, Technology  
& Research at the West Virginia  
Higher Education Policy Commission  
provides strategic leadership for  
the development of competitive  
academic research opportunities in  
science, technology, engineering and  
mathematics (STEM).

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## FROM THE DIRECTOR

# West Virginia's Stars

## Celebrating STEM success around the state

In this issue's feature article, we bring you two of West Virginia's Stars: Dr. Maura McLaughlin and Dr. Duncan Lorimer.

We are so lucky to have these world-renowned researchers in West Virginia! In addition to their teaching and research responsibilities at WVU, they have served the state to help promote research in West Virginia, and for EPSCoR efforts in particular. Dr. McLaughlin headed the astrophysics part of the NSF-funded Track-1 grant that ended in 2023 and serves on the Science & Research Council which oversees the STaR Division NSF EPSCoR office. Dr. Lorimer serves on the WV NASA Space Grant Consortium Board. We thank them for their service to the state and for touching the lives of many students in their roles at WVU and across the state.

Now entering Year 2, the latest NSF EPSCoR Track-1 grant, West Virginia Network for Functional Neuroscience and Transcriptomics (WV-NFNT), has taken tremendous steps in Year 1 by acquiring state-of-the-art instrumentation and attracting a diverse group of researchers for the project. As a

result of the project, WVU is now operating a MERSCOPE (see Neuron Vol. 19, Issue 2) and a STED super-resolution confocal microscope. A STED was added at Marshall University and a confocal microscope at Shepherd University. Undergraduates, graduate students and postdocs have been recruited to work on the project, as well as a faculty hire and technician.

As part of education and workforce development, all participating institutions - WVU, Marshall, West Virginia State University and Shepherd - are holding a series of summer camps (see page 6). The project also presents the opportunity for researchers to visit partner institutions to talk to students and fellow researchers.

And finally, the project supported bringing speakers about neuroscience and neurodiversity to adults and 9th grade WV GEAR UP students.



Serafin

*Julie*

## Juliana Serafin, Ph.D.

Senior Director of Science & Research,  
West Virginia Higher Education Policy  
Commission, and Project Director, WV  
EPSCoR

# News briefings



**WVU astrophysicist to put own spin on first-of-its-kind gravitational wave detector with NASA support**

A theoretical astrophysicist at West Virginia University will play a key role in the development of a first-of-its-kind planned space probe to detect and accurately measure gravitational waves — ripples in the fabric of space and time.

Sean McWilliams, associate professor of physics and astronomy in the WVU Eberly College of Arts and Sciences, was part of a team in 2015 that first detected those invisible ripples, which confirmed Albert Einstein’s general theory of relativity. Now, with \$750,000 in support from NASA’s Established Program to Stimulate Competitive Research, McWilliams will lead efforts to develop models to help facilitate observations from the planned space probe.

## Gov. Justice signs bill allocating \$50 million for new agriculture lab at West Virginia State University

Gov. Jim Justice signed Senate Bill 1003, which allocates \$50 million to construct a new state-of-the-art agricultural laboratory at West Virginia State University. The cutting-edge facility will house laboratory space for both West Virginia State University and the West Virginia Department of Agriculture. It will provide valuable laboratory and classroom space for WVSU faculty and students and play an important role in creating a new School of Agriculture, Food, and Natural Resources at WVSU.

“Agriculture is a core piece of our state’s history,” Gov. Justice said. “The immense need for a state-of-the-art agricultural lab is something I discussed during my State of the State Address. I’m glad to see this project finally get across the finish line, and I cannot think of a better home than West Virginia State University. I thank the West Virginia Legislature for agreeing on the importance of this project. We all know this is something that will create a huge impact for the agricultural industry and community in the Mountain State for generations to come.”

“This is truly a milestone day in the history of West Virginia State University, and we are grateful to Governor Jim Justice, Senate President Craig Blair, and House Speaker Roger Hanshaw for their

vision and dedication in bringing this state-of-the-art agriculture research laboratory to fruition,” said WVSU President Ericke S. Cage. “West Virginia’s economy is in a strong position for growth in the agricultural fields and WVSU stands ready to help meet the growing demand for a skilled workforce in these areas.”

West Virginia State University is the only land-grant school in the country without a School of Agriculture. The laboratory will build on WVSU’s expansive agricultural research portfolio and provide students with experiential learning opportunities as they can engage in hands-on research projects.

## Fairmont State’s Falcon Park becomes certified wildlife habitat

The National Wildlife Federation recently certified the Falcon Park on Fairmont State University’s campus as a Certified Wildlife Habitat. The certification is based on providing habitat for birds, butterflies and other wildlife that includes food sources, water, cover, resources to raise their young, and sustainable practices.

The goal of the park is to invite people from all walks of life to engage with the outdoors through activities such as applied math, art, nature therapy, environmental stewardship, and citizen science.

# News briefings

## Marshall University, state and federal partners break ground for Institute for Cyber Security

Officials with Marshall University, West Virginia University and the Joint Force Headquarters-Department of Defense Information Network, a component of the United States Cyber Command, among other government, academic and industry partners, broke ground on the \$45-million Marshall University Institute for Cyber Security, located at the corner of Hal Greer Boulevard and Fourth Avenue in Huntington.

The groundbreaking event symbolizes the initial strides in establishing the National Center of Excellence for Cyber Security in Critical Infrastructure, hailed as the second center of its type in the country on a college campus.

Marshall University President Brad D. Smith said Marshall University and its partners are poised to create one of the world’s most critical centers for cyber security.

“We stand at a pivotal moment in history for our university, the state of West Virginia, our country and the world as we embark on this transformative journey,” Smith said. “Through this center, we will develop advanced techniques, tools and methodologies to protect infrastructure and assets, as well as educate the next generation of cyber experts.”

Lt. General Robert J. Skinner, commander of the Joint Force Headquarters-Department of

Defense Information Network (DoDIN), said the facility and its operations will enable numerous opportunities for the future.

Marshall University officials praised the collaborative support of U.S. Sens. Joe Manchin and Shelley Moore Capito, Gov. Jim Justice and the West Virginia Legislature, among others, for their collective efforts to see the center to this point.

The facility will be approximately 78,000 square feet and house a state-of-the-art operations center modeled after JFHQ-DODIN Headquarters in Fort Meade, MD. The facility will also feature 13 labs, among which will be six cybersecurity labs for training purposes, an industrial control systems lab, an internet of things lab and an open-source intelligence lab.

Located directly across Hal Greer Boulevard from the university’s Old Main, the building will serve as the west gateway to the Fourth Avenue Innovation corridor, currently under development by Fairmount Properties.

It is estimated there are more than 500,000 cyber security job openings in the United States alone.

The center at Marshall will be focused on protecting vital infrastructure, while there will be a connected sister operations center at West Virginia University in Morgantown.

## Progress in Shepherd study looking at effect of light therapy on opioid use disorder

Shepherd University announced phase II of an innovative study exploring the potential of Photobiomodulation (PBM) therapy for opioid use disorder.

Led by Shepherd’s own Dr. Jennifer Flora, Suzanne Shipley Wellness Center director, and Dr. Kelly Watson Huffer, associate professor of nursing, this groundbreaking study is the first global transcranial research focusing specifically on PBM therapy for this purpose.

In PBM therapy, a practitioner applies low-level lasers or light-emitting diodes to the surface of the body to improve tissue repair and reduce pain and inflammation. PBM is seen as a way to treat some pain-causing medical conditions instead of using opioids.

Dr. Mary J.C. Hendrix, Shepherd University President, said it is exciting to be at the forefront of this work and to have so many partners on hand to announce the next phase.

“We are deeply grateful to our state and local partners for their support of Shepherd University’s PBM Center that allows us to provide a promising new approach to treat Opioid Use Disorder,” Hendrix said. “The landmark collaborative study, revealed today, brings new hope to the field – and offers a pharmaceutical-free therapy for individuals in need of extricating themselves from opioids.”



# NSF EPSCoR

**National Science Foundation  
Established Program to Stimulate  
Competitive Research**

A program that enhances research competitiveness of targeted jurisdictions (states, territories, and a commonwealth) by strengthening STEM capacity and capability through a diverse portfolio of investments from talent development to local infrastructure



**Grant No. OIA-2242771**

## Neuroscience and data science summer camps begin

Summer isn't only a time for beach trips and pool days. It is also camp season. The WV Network for Functional Neuroscience and Transcriptomics (WV-NFNT) is funding five summer camps across the state of West Virginia. These include: Marshall University NeuroCamp from July 22-26, 2024; Shepherd University Neuroscience /Data Science Camp from June 17-21, 2024; WVU Brain Camp from July 14-20, 2024; West Virginia State University Mind Marvel Neuroscience Camp from July 29 – August 2, 2024; and West Virginia Science Adventures happening at various dates based on location. To learn more about how to register for these camps, please email us at [info@wvresearch.org](mailto:info@wvresearch.org).

## STEM Speaker Series hosted Dr. Scott Barry Kaufman in Charleston

STaR Division hosted Dr. Scott Barry Kaufman for an evening presentation at the West Virginia Culture Center in Charleston on Monday, April 15. This event was free to the public thanks to funding through WV Network for Functional Neuroscience and Transcriptomics.

STaR also partnered with West Virginia GEAR UP to provide their approximately 900 high school students attending the 2024 STEM Academy with a chance to hear Dr. Kaufman in person.

Kaufman explores the depths of human potential by challenging traditional metrics of success. His early educational experiences made him realize the deep reservoir of untapped potential of students, including bright children diagnosed with a learning disability.

## Horstick gives keynote address at Pennsylvania research conference

Dr. Eric Horstick, assistant professor of biology at West Virginia University and Theme 1 Lead for WV-NFNT, gave the keynote address at the Commonwealth of Pennsylvania University Biologists (CPUB) Annual Meeting at Pennsylvania Western University California on April 13.

Titled, "Fish tales: How your experiences shape the brain and a journey from CPUB to now," Horstick shared his expertise with undergraduates from approximately 14 different institutions.

# NSF INCLUDES

**National Science Foundation  
Inclusion across the Nation of  
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Underrepresented Discoverers in  
Engineering and Science**

A comprehensive national initiative to enhance U.S. leadership in science, technology, engineering and mathematics (STEM) discoveries and innovations focused on NSF's commitment to diversity, inclusion, and broadening participation in these fields



**Grant No. HRD-1834586**

## First2 Network and West Virginia Jobs Network hold co-conference

The annual First2 Network Spring conference was held May 16-18 at Canaan Valley Resort. This year was a co-conference with the WV Jobs Network (WVJN), working to focus on the connections between higher education and employment and what those pathways look like for students and early career professionals.

Attendees were varied and organizations made an effort to send representatives. Two separate networking events were held: the Career Connections Mocktail Networking event, sponsored by Career Connections and Generation West Virginia, and an Employment Mentoring event. Both were student and early career faculty focused.

Student voices were central to the conference, with students leading sessions focused on current pathway effectiveness, pain points, and points of success.

First2 also has a second two year institution involved in the network: New River Community and Technical College. First2 is very excited to continue building this relationship in the years to come.

## First2 expands to nine institutions

First2 Network welcomed an eighth West Virginia institution, Shepherd University, and Eastern Kentucky University as funded network campuses. Shepherd's First2 activities will focus on establishing a First2 campus club, a spring engagement event, support for staff and students to attend conferences, and designing and renovating a space for use as a STEM Student Success Center. Eastern Kentucky University also plans to establish a First2 campus club in addition to providing a three-day STEM Summer Start bridge program.

"We are really excited to have Shepherd and Eastern Kentucky University joining the Network this year," First2 Institutional Team Coordinator Erica Harvey said. "We recently did an onboarding at Shepherd and it was wonderful to meet with the energetic core team and see their passion and good ideas. Based on their proposal and our interactions so far, I know the same will be true at Eastern Kentucky University."

# NSF GRANTED

*Growing Research Access for  
Nationally Transformative Equity  
and Diversity*

A program that focuses on  
addressing systemic barriers within  
the nation's research enterprise by  
improving research support and  
service capacity



Grant No. OIA-2323953



Left to right: Ericke Cage, Juliana Serafin, and Dina Stroud

## GRANTED workshops wrap up for 2024 with statewide conference in May

GRANTED wrapped up its first year with a statewide conference at Stonewall Resort May 15-16.

Leaders from across the state shared their expertise on grant writing and management. Highlights included keynote addresses from NSF GRANTED Program Director Dina Stroud, Amy Cuhel-Schuckers from The College of New Jersey, and President Ericke Cage of West Virginia State University. Panelists with experience in pre-award and post-award management shared their insights while break-out sessions were held for attendees to identify barriers to grant award submissions while also brainstorming solutions to problems.

GRANTED is a National Science Foundation program that focuses on addressing systemic barriers within the nation's research enterprise by improving research support and service capacity. West Virginia GRANTED held regional meetings before the statewide event to gather STEM grant administration personnel and faculty to identify barriers to proposal submission and post-award grant administration.

# Research Challenge Fund

Established by the State Legislature  
in 2004 to support research  
and development projects at  
institutions of higher education in  
West Virginia



Students at KidsFest in Huntington

## Opportunity Grants & Sponsorships program funds local STEM projects

The Opportunity Grants & Sponsorships Program, funded by the Research Challenge Fund, supported multiple local schools and organizations so far in 2024. This includes, but is not limited to: KidsFest at the Huntington Children's Museum; the 2024 Marshall University Research & Creativity Symposium; and the National Youth Science Academy's STEAM Adventure Day Camp LEGO Extravaganza 2024.

The next round of Opportunity Grants and Sponsorships opened on July 1. For more information on applying, please visit [wvresearch.org](http://wvresearch.org).



STEAM project at KidsFest



# Look to the Stars

## Two renowned astrophysicists build careers and lives in West Virginia

By Angela Sundstrom

Partnership, at its best, is about support. Whether professionally or personally, finding proper partners is a lifelong pursuit for many. Others are fortunate enough to not only find a person to share their life with, but some of their work as well.

Duncan Lorimer and Maura McLaughlin, both professors in physics and astronomy at West Virginia University (WVU), are world-renowned for their scientific work. They find fulfillment in a partnership that also supports each other's individual pursuits. This has allowed them to become two of the most accomplished and respected astronomers in the field today.

### Research Interests

Both Lorimer and McLaughlin were captivated by the night sky from a young age.

"I often used to find myself, as a kid, just sitting for hours thinking about the vastness of space," Lorimer said. "Is it infinite, and what does infinity really mean? If it's finite, what is the size of the universe? How old is the universe? Almost philosophical questions."

Lorimer's fascination with space led him to study physics which introduced him to astronomy. His first time using a telescope as a high school student captured his imagination and solidified an interest in making observations. McLaughlin never had a telescope growing up but found her inspiration in the pages of her favorite books.

"I've always been interested in astronomy," McLaughlin said. "I was just reading science fiction, like Isaac Asimov. Carl Sagan, too. I read Stephen Hawking's A Brief History of Time in high school, which is about stars and black holes, and just thought that was amazing."

McLaughlin majored in astronomy as an undergraduate student. This would lead her to the Arecibo Observatory in Puerto Rico, the largest telescope in the world at the time, where she would not only expand her knowledge as a visiting graduate student, but also meet Lorimer, who was already there working as a research scientist after earning his doctorate.

Both Lorimer and McLaughlin, along with Australian scientist Matthew Bailes, are credited with discovering fast radio bursts (FRBs) shortly after Lorimer and McLaughlin arrived at WVU in 2006. FRBs are a fleeting blast of energy that can – for a few milliseconds – be one of the brightest radio sources in the sky. They occur at random locations in the sky, perhaps even as frequent as once per second somewhere in the universe, but where these intense bursts of radiation originate from is uncertain. In 2007, the three astronomers collaborated on a paper published in Science, a peer-reviewed academic journal, describing their new discovery.

They each chase their own individual interests, too. McLaughlin devotes much of her time now to the North American Nanohertz Observatory for Gravitational Waves (NANOGrav), a collaboration of astronomers funded by the National Science Foundation (NSF) working to detect gravitational waves. McLaughlin is co-director of the NANOGrav Physics Frontiers Center.

"We are timing an array of millisecond pulsars, or rapidly spinning neutron stars, distributed across the sky, searching for invisible ripples in space-time called gravitational waves," McLaughlin said. "We do this by looking for very small perturbations and the arrival times of the pulses. Last June, we announced the first evidence for a background



Above: Maura McLaughlin and Duncan Lorimer, internationally recognized WVU astrophysicists, have utilized the Green Bank Observatory in Pocahontas County to conduct groundbreaking research in astronomy. (WVU Photo/Scott Lituchy)

of these low-frequency gravitational waves, which was really exciting." The source of these gravitational waves, McLaughlin believes, is extremely massive pairs of black holes. "When merged galaxies come together, they have black holes at their cores. As those black holes spiral, we're detecting gravitational waves from them."

Lorimer still focuses his studies on fast radio bursts. His most recent project involves several graduate students working on a detector installed on the 100 meter Robert C. Byrd telescope at the Green Bank Observatory (GBO) to create a machine learning system that gathers and organizes data from each telescope usage, saving scientists hours of intensive work. However, his most recent endeavor has been an administrative one: serving as associate dean for research in the Eberly College of Arts and Sciences at WVU. He completed his tenure in June 2024.

"It's been fabulous," Lorimer said. "I really saw an

opportunity to give back. I've gained a deep respect for all the scholarship that's happening in every college. I've been able to work with people in fields that I knew very little about five years ago. It's been wonderful."

Both McLaughlin and Lorimer were also participants in the Gravitational Waves theme for West Virginia's recently completed \$20 million five-year grant from the NSF Established Program to Stimulate Competitive Research (EPSCoR) Research Infrastructure Improvement Track-1 project. This grant was administered by STaR. McLaughlin was a member of the project's Executive Leadership Team and currently serves on the state Science & Research Council.

### Shared Pursuits

When Lorimer and McLaughlin arrived at WVU in 2006, they began building an astrophysics and astronomy program



from the ground up. With assistance from the program's long serving sole faculty member on the brink of retirement, the two forged ahead with their ideas. One huge reason they found themselves in the Mountain State: Green Bank Observatory.

"That's what brought us to West Virginia," Lorimer said. "It's a very important resource to have nearby."

Both Lorimer and McLaughlin, as well as their students, utilize the telescopes in Pocahontas County often. The partnerships formed with staff at GBO throughout the years have been instrumental in the WVU program's success. They include outreach just as much as research. In 2008, McLaughlin and Lorimer, along with colleagues at GBO, founded the Pulsar Science Collaboratory to provide opportunities for high school students, undergraduate students, faculty and teachers to search for pulsars and carry out pulsar research projects.

Since their arrival at WVU, Lorimer and McLaughlin have created a new suite of classes in the Department of Physics and Astronomy and started a graduate program in astronomy. They established the WVU Center for Gravitational Waves and Astronomy to explore the origins of the universe and the fundamental processes involved in galaxy formation, stellar evolution and star formation. The Center now has eight affiliated faculty who specialize in astronomy and has graduated over 40 graduate students, including two dozen Ph.D. students. Lorimer and McLaughlin labored for nearly two decades to create what has become a vibrant, thriving science education experience.

"It was hard work those first few years," McLaughlin said. "But it's really rewarding to see the students that we've trained become faculty members or research scientists or go into industry. All the new astronomy faculty we've hired after us and seeing how successful they have been, it's all so rewarding. I feel very attached to the group."

### Career Recognitions

A person seeking fame does not typically enter the sciences. Chasing awards is often the road to disappointment and scientists find career satisfaction in the process of discovery. Then, there are times when fame finds you, usually after years of diligently working away. There are a few awards and acknowledgements in the science world that can leave anyone speechless. In the last year, both Lorimer and McLaughlin have experienced such moments, both individually and together.

McLaughlin was selected as a new member of the prestigious National Academy of Sciences (NAS) in 2024, the



*McLaughlin and Lorimer discuss their research and discovery of fast radio bursts occurring billions of light years away during a WVU event. (WVU Photo/Scott Lituchy)*

first WVU researcher to receive the honor.

Established by an Act of Congress and signed by President Abraham Lincoln in 1863, the NAS is charged with providing independent, objective advice to the nation on matters related to science and technology. Scientists are elected to the NAS by their peers for outstanding contributions to research.

"I had no idea that I was even being considered," McLaughlin said. "It's an honor. Just looking at all of the other astronomers I know that are on it or people that I've respected for many years, it's an honor to be part of that group."

Also in 2024, Lorimer was selected as a Fellow of The

Royal Society of London for his contributions to pulsar astrophysics and his role in the discovery of fast radio bursts. Founded in 1660, The Royal Society is a fellowship of the world's most eminent scientists and is the oldest scientific academy in continuous existence. Eminent fellows of the society include Isaac Newton, Charles Darwin and Albert Einstein.

"That was just such an amazing moment when I got the letter," Lorimer said. "I knew that I was under consideration, but it's such a competitive process. There's a nice connection because, prior to coming to West Virginia, I was supported as an early career researcher through The Royal Society."

In 2023, both Lorimer and McLaughlin, along with their old friend Matthew Bailes, were awarded the Shaw Prize. Known as the "Nobel Prize of the East," the Shaw Prize is an international award to honor individuals who have recently achieved distinguished and significant advances in the fields of Astronomy, Life Sciences and Medicine, and Mathematical Sciences. Lorimer, McLaughlin and Bailes were recognized for their discovery of FRBs in 2007. After years of proven observations and the realized scientific potential, their discovery reached worldwide prominence.

"That was such a great surprise," Lorimer said. "Just a humbling experience."

The award led the couple to Asia last November to be formally recognized at a ceremony in Hong Kong.

**"One of our goals is to raise up the state of West Virginia. This is how we do that."**

**- Duncan Lorimer**

### Looking to the Future

With a new collection of accolades and already long careers behind them, one might think Lorimer and McLaughlin would be winding down. They have dedicated their lives to astronomy, all while raising three children and trying to maintain a healthy separation between their personal and professional lives. The balance struck has been part of their success.

"Because we are doing the same thing, we kind of understand the pressures and we understand that, at times, the other one will be busy," Lorimer said. "A funding proposal or a conference. That's the time for the other person to step in more on the family side. It has been really helpful to just have that implicit understanding and support of each other."

Each still hopes to continue nurturing the next generation of scientists. McLaughlin encourages students looking to



*Governor Jim Justice visited WVU on June 24 to present Lorimer and McLaughlin with Distinguished West Virginian awards. Left to right: House Speaker Roger Hanshaw, WVU President Gordon Gee, McLaughlin, Gov. Justice, and Lorimer (Holly Legleiter/West Virginia University)*

model their careers after her own to step back and assess what it is they want most.

"What aspects of your future are non-negotiable? What do you enjoy about being a scientist and what do you not? Some students love research and hate writing. Some hate research but love teaching. I have former students who work as data analysts or in science communication. Just really think about what your strengths are and what you want to do."

McLaughlin emphasizes there are many different, creative paths for physics or astronomy graduates. It's a very transferable degree because of the sharp critical thinking skills acquired, she said.

Lorimer wants to convey his gratitude for the support over the years from every American citizen who he considers a part of their success.

"I always do want to stress how important support is," Lorimer said. "Not only from our university and the West Virginia Higher Education Policy Commission, but also the people of the state of West Virginia."

A huge portion of research funding in the United States is supported by state and federal grants which is funded by tax dollars. Through the contributions of taxpayers, Lorimer said, you help support this work and all of the research that goes on at universities. Without that, much of the work would not occur.

"One of our goals is to raise up the state of West Virginia," Lorimer said. "This is how we do that."



# Commentary

## Fred King



Seventy years ago, the idea of establishing a national center for radio astronomy in the United States began to take hold with policymakers in Washington, D.C. Then in 1957, construction of such a facility began in Green Bank, West Virginia with support from the National Science Foundation.

*“All roads lead to West Virginia as a global leader in astrophysics research.”*  
- Fred King

The Green Bank Observatory was at the forefront of radio astronomy research over the subsequent decades playing a pivotal role in many important discoveries in the field. A central tool was the 300-foot telescope, the largest steerable telescope in the world. In November 1988, the telescope collapsed due to a mechanical failure.

From 1990-2000, a new steerable telescope was built, again becoming the world’s largest as the 100-meter Robert C. Byrd Telescope. It is reported that some 40,000 people visit the telescope annually. Truly a hidden gem of a world-class scientific tool in remote Pocahontas County.

It was this amazing tool that helped attract two astronomers to begin their academic careers at West Virginia University in 2006. In the subsequent years, they built a world-class astrophysics program at the University. In 2023, Professors Duncan Lorimer and Maura McLaughlin were recognized for their groundbreaking discovery and exploration of fast radio bursts receiving the Shaw Prize, considered the “Nobel of the East.” Then, in 2024, McLaughlin was elected to the National Academy of Sciences while Lorimer was named a Fellow of the Royal Society. Needless to say, all roads lead to West Virginia as a global leader in astrophysics research!

*Dr. Fred L. King is the Vice President for Research at West Virginia University where he is also a Professor in the department of chemistry. Professor King earned his BS degree in chemistry from James Madison University and his PhD in analytical chemistry from the University of Virginia. He held a National Research Council Postdoctoral Research Associateship at the Naval Research Laboratory before joining the faculty of West Virginia University. Prior to his appointment as Vice President for Research, he served as the Associate Dean for Research and Graduate Education in the Eberly College of Arts and Sciences. Professor King’s research in optical spectroscopy and mass spectrometry has been supported by the Office of Naval Research, the National Science Foundation, and the US Department of Energy. It has also been featured on the cover of peer reviewed journals in his discipline. His former graduate students hold positions in academia, industry, and national laboratories. He served on the Board of Directors of the Oak Ridge Associated Universities and is the past-Chair of the Board of Trustees of the Southern Universities Research Association which manages the Jefferson Laboratory for the US Department of Energy.*

# PROPOSAL REVIEW SERVICE

*Available to all STEM faculty at West Virginia’s colleges and universities*

Email your proposal, the solicitation to which you are responding, and any reviews of prior submissions to Dr. Juliana Serafin, senior director of science and research, STaR Division: Science, Technology & Research at the West Virginia Higher Education Policy Commission, at [juliana.serafin@wvresearch.org](mailto:juliana.serafin@wvresearch.org). All proposal materials must be sent at least three weeks before necessary revisions are needed for submission.

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