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Science Foundation Arizona Selects Top Science and Engineering Talent to Lead Research at Arizona Institutions through Bisgrove Scholar Program

Program designed to strengthen Arizona’s science and engineering entrepreneurship

PHOENIX (April 23, 2014) – Science Foundation Arizona (SFAz) announces the selection of four nationally and internationally recognized Ph.D. candidates and early-career tenure track faculty for its prestigious Bisgrove Scholars award. Arizona’s top research institutions will receive new scholars and research funding by fall 2014.

With the future of Arizona linked to the creativity and competitiveness of the next generation of academic researchers in science and engineering, this program aims to attract and retain exceptional individuals who have demonstrated substantial achievement and possess the potential to transform ideas into great value for society.

The four selected for the 2014 Bisgrove Scholars Award are Michael Gram who will be a Post-Doctoral Scholar at Arizona State University (ASU), Dr. Muhammad Murtaza who will be an Early Career Scholar at Translational Genomics Research Institute (TGen), Cody Routson who will be a Post-Doctoral Scholar at Northern Arizona University (NAU) and Rachel Rowe who will be a Post-Doctoral Scholar at Phoenix Children’s Hospital (PCH):

- **Michael Gram**, a post-doctoral scholar with a focus on materials science and engineering will begin conducting research at ASU this fall under the guidance of his mentor, Professor Nikhil Chawla. Gram will complete his Ph.D. at The Ohio State University later this year. His passion involves coupling experimental and computational methods to understand complex material behavior, a key component of his planned future work. At ASU, Gram and Dr. Chawla will tackle a problem that restricts the growth of nearly every technical field – predicting material failure in extreme environments. Gram will work to advance the fields of 4D x-ray tomography and computational peridynamics to discover unprecedented insight into the mechanisms controlling failure in materials. He will be able to examine them not only in three dimensions but also include the impacts of a fourth dimension such as time or motion. This will address a significant technical and economic issue as well as generate captivating 3D videos to better illustrate fundamental material phenomena to students of all ages.

- **Dr. Muhammad Murtaza**, an early career scholar with a focus on tumor DNA analysis will begin his Bisgrove fellowship at TGen and the Mayo Clinic after he completes his graduate studies at Trinity College, University of Cambridge, England this summer. He has already completed dual degrees in medicine and surgery from Aga Khan University, Pakistan. Murtaza has published groundbreaking research in *Nature* and the *New England Journal of Medicine* on using circulating tumor-specific DNA to measure changes in tumors and to understand how cancers evolve in response to treatment. At TGen and the Mayo Clinic, Scottsdale, he will
continue this work and co-lead the setup of a program focused on increasing the understanding of the issues while seeking clinical application of circulating tumor DNA analysis, applying methods in genomics and bioinformatics. This research could potentially lead to circulating DNA-based cancer blood tests for human patients allowing better disease tracking and more informed treatment decisions.

- **Cody Routson, a post-doctoral scholar with a focus on local and hemispheric climate changes** will begin conducting his research at NAU this fall under the guidance of his mentor, Dr. Darrell Kaufman. Routson is currently working to complete his Ph.D. at University of Arizona (UA). Growing up on a small farm outside of Prescott, Ariz., Routson saw firsthand how his family’s livelihood was directly influenced by annual rainfall, summer temperatures and the timing of late spring and early fall freezes. He understood the implications of climate vulnerability at an early age which inspires him to help increase society’s resilience and ability to adapt to climate change. At NAU, he will study Northern Hemisphere climate drivers, including Arctic weather patterns and sea ice fluctuation which have major implications for both local and hemispheric climate. This work will help characterize the risk of extreme events and inform adaptation strategies to cope with climate change.

- **Dr. Rachel Rowe, a post-doctoral scholar with a focus on traumatic brain injury (TBI)** will begin her research at PCH in the Translational Neurotrauma Research Group. This is a multi-institutional project that also includes UA College of Medicine – Phoenix, Barrow Neurological Institute at PCH and the Phoenix Veteran Affairs Healthcare System. Rowe comes to Arizona from Kentucky where she received degrees in pre-medical sciences and integrated biomedical sciences. She received her doctoral degree from the University of Kentucky College of Medicine’s Department of Anatomy and Neurobiology in conjunction with the Spinal Cord and Brain Injury Research Center. At PCH, Rowe will study endocrine dysfunction following diffuse brain injury. The data from the planned experiments will help with the development of therapeutic approaches that can improve the lives of individuals living with TBI.

“Attracting and retaining top-tier science and engineering talent is imperative to our state’s future,” said William Harris, President and CEO of SFAz. “These four Bisgrove Scholar Award recipients are some of the best young minds in America with the potential to transform their areas of research into value for our society.”

This is the fourth year of the **Bisgrove Scholars program** which has supported a total of 15 high-level researchers. Many successes have stemmed from this program including 2012 Bisgrove Post-Doctoral Scholar, Dr. Sarah Leung who helped develop improved imaging processes for earlier detection of colon cancer. In addition, 2013 Bisgrove Early Career Track Scholar, Dr. Carole Jean Wu has been focused on understanding the heat dissipation processes and potential energy harvesting strategies which can be utilized in the functioning of high performance central processing units (CPU’s) in computer systems. Her work has direct application to CPU manufacturers so she’s been developing strong collaborative efforts with industry partners such as Intel.

The program is named in honor of businessman and philanthropist Jerry Bisgrove, who helped fund the launch of SFAz in 2006 and is a longtime proponent of science and its link to global competitiveness.

**About Science Foundation Arizona**

Science Foundation Arizona (SFAz) is a 501(c)(3) non-profit organization initiated in 2006 by the Greater Phoenix Leadership Inc., Southern Arizona Leadership Council and the Flagstaff Forty in conjunction with the executive and legislative branches of state government. SFAz serves as a catalyst for high-wage, knowledge-based jobs and economic diversity through administration and strict
oversight of research, development and education grants to public education and other non-profit research performing institutions. For more information, visit www.sfaz.org.

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