

Josh Park attracts NSF Grant for heat reduction research in electronics

A-STATE NEWS

PRESS RELEASE

An assistant professor of mechanical engineering at Arkansas State University is pursuing research with NASA's Johnson Space Center into how to more effectively reduce heat build-up in electronic systems.

The grant proposal from Dr. Jeongmoon (Josh) Park was approved by the National Science Foundation's RII Track-4: Fellows Advancing Science and Technology (FAST) program for \$174,864.

Before joining the College of Engineering and Computer Science faculty in 2021, Park earned his Ph.D. at

Texas A&M, his master's at Purdue, and bachelor's at the Korea Aerospace University.

He noted the rapid development of technology has resulted in higher performance and smaller size in electronics. However, with increased circuit density and faster operating frequency, more heat is dissipated and needs to be removed.

Success of this project will lead to thermal performance enhancement of cold plates, thereby reducing equipment size and weight, and saving energy.

"Traditional heat removal systems employing a heat sink and fan often become insufficient for modern

electronics to maintain within the operating temperature," he explained in his grant proposal. "Therefore, this research is driven by the need to develop an advanced thermal management system to remove the dissipated heat sufficiently and maintain the electronics below the operating temperature, for better performance and higher reliability."

In collaboration with the NASA Johnson Space Center, he will design and develop an advanced cold plate heat exchanger that can remove heat more efficiently and effectively by using vortex generators, an aerodynamic element,

especially for electronics in manned spacecraft.

Cold plates have liquid coolant flow passages bounded by metallic walls. The use of vortex generators in the flow passages has great potential to enhance heat transfer, Park continued.

"When better liquid cooling in cold plates is achieved, it can lead to significant energy savings as well as reduced equipment size and weight. Eventually, this research can support the design, development, and implementation of the next generation of thermal management systems for electronics in spacecraft applications."



PHOTO COURTESY OF ARKANSAS STATE UNIVERSITY

Dr. Jeongmoon (Josh) Park

Dinah Tetteh is new Vaughn Endowed Professor in Liberal Arts and Communication

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PRESS RELEASE

Dr. Dinah Tetteh, a member of the Arkansas State University faculty since 2016, has been selected as the new Vaughn Endowed Professor in the College of Liberal Arts and Communication.

"I am pleased to announce Dr. Tetteh as the new Vaughn Endowed Professor," said Dr. Carl M. Cates, dean of the college. "Her research record over the last five years is outstanding and includes a solo authored book and six refereed articles in journals, along with nearly 20 competitive papers and poster sessions."

Her appointment began effective at the beginning of the fall semester and extends for a five-year period. Tetteh was promoted this year to associate

professor in the Department of Communication. Her research and teaching specialties include health communication, interpersonal communication and women's health.

"I am honored to be named recipient of the Vaughn Endowed Professorship. I appreciate the Vaughns for their generosity. I am also grateful for the support of Dean Cates and my colleagues in the college and in the Department of Communication," Tetteh commented. "I hope to use the resources available to me through this professorship to extend my research agenda and also mentor, support and enrich my students' research experiences."

In addition to her extensive research and publishing achievements, she teaches graduate-level courses in communication

theory, interpersonal communication, and qualitative research methods. Her undergraduate courses include interpersonal communication, health communication, conflict resolution and oral communication.

Tetteh completed her doctoral degree in communication studies in 2016 at Bowling Green State University. Her dissertation was "Stories of Teal: Women's Experiences of Ovarian Cancer."

She earned her master's degree in professional communication at East Tennessee State University, and her bachelor's degree at the University of Cape Coast in Ghana.

The professorship is one of three created through an estate gift from the late James E. and Wanda Lee

Vaughn. Earnings from the endowment are available to the professorship holder to conduct research, create special learning opportunities for students, and support other facets of their academic pursuits.

Inducted in 1999 into the university's Legacy Society for donors of planned gifts, the Vaughns strongly believed in the importance of higher education and its potential to positively impact young peoples' lives. Both A-State alumni, Mr. Vaughn earned a master's degree in education and Mrs. Vaughn earned her bachelor's degree in elementary education.

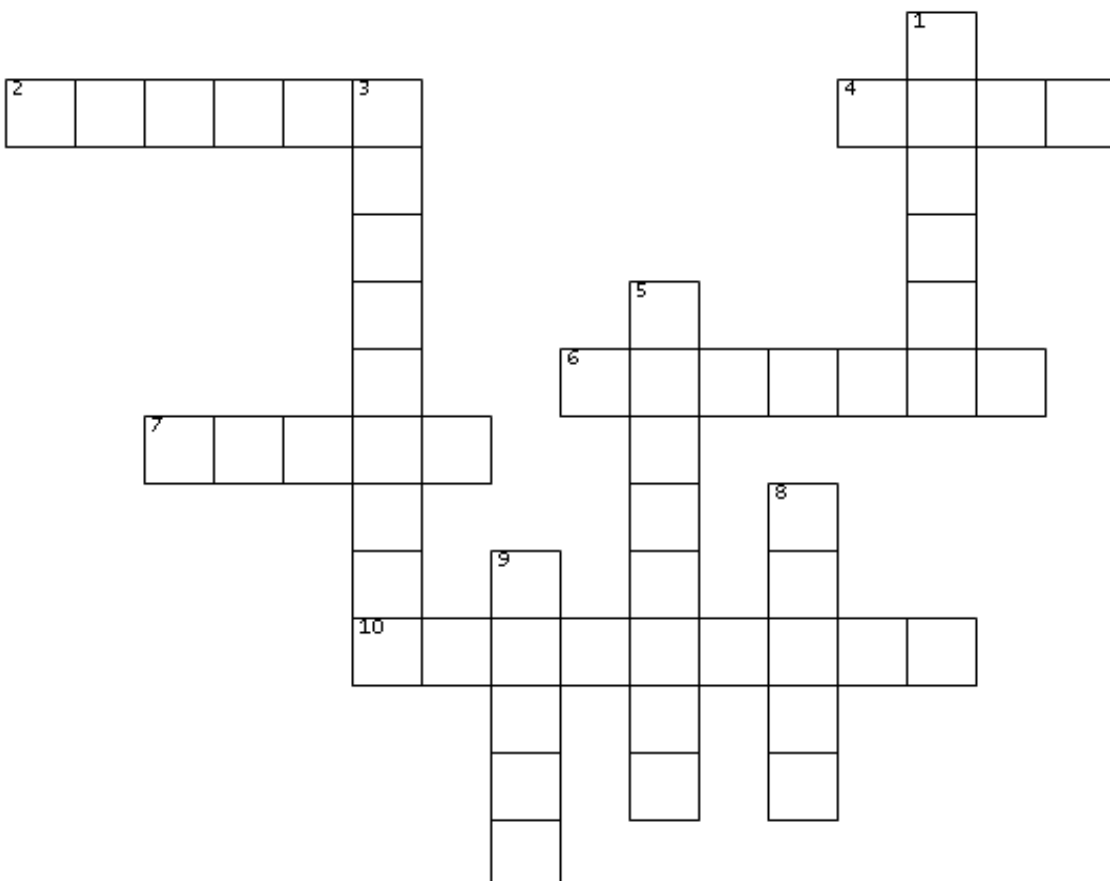
Tetteh succeeds Dr. Cherise Jones-Branch, the initial holder of the Vaughn Professorship, who is now dean of the Graduate School.



PHOTO COURTESY OF ARKANSAS STATE UNIVERSITY

Dr. Dinah Tetteh

This week's crossword puzzle



DOWN

1. a stringed musical instrument, with a fretted fingerboard, typically curved sides, and six or twelve strings, played by plucking or strumming
3. a person who advocates or practices socialism
5. a ball game played between two teams of nine on a field with a diamond-shaped circuit of four bases
8. a small rectangular block typically made of fired or sun-dried clay, used in building
9. have an intense feeling of longing for something, typically something that one has lost or been separated from

ACROSS

2. a strong, coarse unbleached cloth made from hemp, flax, cotton, or a similar yarn, used to make items such as sails and tents and as a surface for oil painting
4. a body of people (typically twelve in number) sworn to give a verdict in a legal case on the basis of evidence submitted to them in court
6. a building or group of buildings where goods are manufactured or assembled chiefly by machine
7. a form of words used as a magical charm or incantation
10. a person skilled in a particular kind of therapy