

## Alfred University professor wins \$3 million award for laser materials research

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Dr. Yiquan Wu

Dr. Yiquan Wu, associate professor of materials science in the Inamori School of Engineering at Alfred University, has received an award from the Office of Naval Research for the HEL-JTO High Energy Laser Multidisciplinary Research Initiative Program.

It is a five-year project with a total funding of approximately \$ 3 million. The objective, said Wu, is to develop and study planar waveguide lasers fabricated from high thermal conductivity materials by using advanced ceramic processing and additive manufacturing techniques, with a goal of achieving better thermal management of the laser gain media.

“Understanding the synergetic effects on laser performance of using high thermal conductivity materials for planar waveguide structures will be an important step towards developing novel and advanced technologies to increase the power of solid-state laser systems for Department of Defense-related applications,” said Wu.

“We are immensely proud of this latest recognition of Yiquan&s work in laser development that relies on high-temperature capabilities at our Inamori School of Engineering, and the talents of faculty and staff colleagues,” said Alfred University President Mark Zupan. “A year ago, Yiquan was recognized with a prestigious CAREER award for his rising-star accomplishment and future potential. This latest Office of Naval Research grant further validates the promise and impact of his scholarship and the possibility that its insights will allow the manufacture of even more sophisticated lasers in the future.”

It is a multidisciplinary research project, and Wu serves as the principal investigator, collaborating with Prof. Denis Cormier from Rochester Institute of Technology, Prof. John Marciante from University of Rochester, and Prof. Alastair Cormack from Alfred University.

“Dr. Wu is part of a long and substantive history of ground-breaking research and teaching in materials science at Alfred University,” said W. Richard Stephens, Alfred University provost, vice president of Academic Affairs, and acting vice president of Statutory Affairs. “Dr. Wu’s career, and this latest award, confirms not only his standing within the wider scientific community, but his value to the University’s ongoing commitment to students and STEM (Science, Technology, Engineering and Math) education.

Wu was invited to participate in the Manufacturing Innovation Institute in Integrated Photonics, based in Rochester, announced July 2015. The new \$610 million center is funded by \$110 million allocated by the federal government through the U.S. Department of Defense; \$250 million committed by Gov. Andrew Cuomo on behalf of New York State, and the remaining \$250 million committed by the private partners in the venture.

Wu earned a Ph.D. in materials science from Imperial College London. His research interests include transparent materials for optics and photonics, advanced ceramics, optical materials, nanostructured materials for energy, biomaterials, and functional films and coatings.

Wu is the awardee of prestigious AFOSR-YIP and NSF CAREER award. He also received a “Global Star Award” from the American Ceramic Society’s Engineering Ceramics Division in 2016.

His research work has been funded by the U.S. Air Force Office of Scientific Research, the Office of Naval Research, the National Science Foundation, the Defense Threat Reduction Agency, Corning Incorporated, and Sandia National Laboratory.