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FOR IMMEDIATE RELEASE

### **High School Student Published for the Second Time**

Oklahoma City, OK (November 28, 2018)- William Wang, a senior attending the Oklahoma School of Science and Mathematics (OSSM) in Oklahoma City, recently had his work on nanoscience, photonics, and optical materials accepted for publication in Optics Express, an international peer-reviewed scientific journal published by the Optical Society of America (OSA). The journal emphasizes scientific and technology innovations in all aspects of optics and photonics, according to the OSA website.

Under Professor Peifen Zhu at the University of Tulsa, William successfully synthesized europium-doped yttrium oxide nanospheres with various sizes ranging from 40 nanometers to over 300 nanometers, using a single method, namely, a modified co-precipitation method. He was able to control the size and structure of the nanospheres by adjusting various parameters, such as synthesis time and temperature. He also found that the nanospheres treated to high temperatures (> 500 °C) emit strong red light under ultraviolet excitation. The nanospheres can be implemented on GaAlN-based ultraviolet light-emitting diodes (LEDs) as so-called "photon down-conversion phosphors" to generate red light and white light more efficiently, leading to more efficient LEDs.

William Wang said, "My work could lead to cheaper lighting and power costs, help reduce fossil fuel dependency, and indirectly help decrease carbon emissions."

The manuscript is titled "Red photoluminescent Eu<sup>3+</sup>-doped Y<sub>2</sub>O<sub>3</sub> nanospheres for LED-phosphor applications: Synthesis and characterization", and the authors are William Wang and Peifen Zhu.

OSSM is a residential high school for juniors and seniors from across the state and is the only one of its kind in Oklahoma. Its mission is to prepare young Oklahomans to think critically by excelling in the studies of science and mathematics. The curriculum is designed not only to immerse students in a rigorous two-year program of advanced physics, mathematics, biology, chemistry and humanities, but also to instill in them a sense of community service. For more information, call 521-6436 or log on to [www.ossm.edu](http://www.ossm.edu).

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