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Established in memory of Lyle Ramsay Dawson Distinguished Professor and Former Head of the Department of Chemistry

SINGLE-NANOPARTICLE SENSORS OF NANO-BIO INTERACTIONS

TERI W. ODOM

Charles E. and Emma H. Morrison Professor of Chemistry, Professor of Materials Science and Engineering, and Associate Director of the International Institute for Nanotechnology (IIN) at Northwestern University

FRIDAY, OCTOBER 27, 2017 | 4:00 PM

DON & CATHY JACOBS

SCIENCE BUILDING, RM 321

**Reception to immediately follow.*

LECTURE ABSTRACT

Nanotechnology offers new strategies for minimally invasive and localized approaches to diagnose and treat diseases. For example, nanoparticles have been explored in a range of applications, including as drug delivery vehicles, imaging probes, and therapeutic agents. Although increased therapeutic e□cacy has been realized, direct visualization of how engineered nanoparticles interact with specific organelles or cellular components has seen limited attention. Such interactions will have implications for fundamentals in cancer biology as well as in the design of translational therapeutic agents. This talk will describe how drug-loaded gold nanostars can behave as multi-spectral optical probes for interrogating how therapeutic nanoconstructs interact with cells at the nanoscale. We will focus on model cancer cell systems that can be used to visualize how gold nanostar nanoconstructs target cells, rotate on the plasma membher

TERI W. ODOM

Teri W. Odom is Charles E. and Emma H. Morrison Professor of Chemistry, Professor of Materials Science and Engineering, and Associate Director of the International Institute for Nanotechnology (IIN) at Northwestern University. She is an expert in designing structured nanoscale materials that exhibit extraordinary size and shape-dependent optical properties. Odom has received numerous honors and awards; select ones include being named a U.S. Department of Defense Vannevar Bush Faculty Fellow; a Radcliffe Institute for Advanced Study Fellowship at Harvard University; an NIH Director's Pioneer Award from the National Institutes of Health; the MRS Outstanding Young Investigator Award; an Alfred P. Sloan Research Fellowship; an NSF CAREER Award; and a David and Lucile Packard Fellowship in Science and Engineering. She is a Fellow of the American Chemical Society, Materials Research Society, and Royal Society of Chemistry and is on the Editorial Advisory Boards of ACS Nano, Chemical Physics Letters, Materials Horizons, Annual Reviews of Physical Chemistry, Chemical Society Reviews, and Nano Letters. She serves as founding Executive Editor of the journal ACS Photonics (2013 -).

Dr. Dawson served in several academic positions in Illinois, Wisconsin, Nebraska and Louisiana and also worked on the Manhattan Project as a Research Chemist and Group Leader in the Metallurgical Laboratory at the University of Chicago. In 1946, he was

Patent for his efforts on the Manhattan Project, which led to the discovery of a fundamental process for the extraction

He was a member of the committee that organized the Oak

of the Institute.

Professor Dawson came to the University of Kentucky in 1945 as Head of the Department of Chemistry. He provided key leadership in initiating and building the doctoral program in

the department, he individually obtained the major portion

with the department, he held contracts for fundamental

He directed or co-directed seventeen Ph.D. dissertations

and had a special ability to imbue his students with a concise,