

# *Phi Lambda Upsilon Annual Seminar Series*

## Resolving Nano-Bio Interactions at the Single-Nanoconstruct Level

### **Prof. Teri W. Odom**

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Nanoparticles have been demonstrated to function as effective drug delivery vehicles, biological imaging probes, and therapeutic agents. Although increased therapeutic efficacy has been realized, direct visualization of how engineered nanoconstructs interact with specific targets such as proteins, organelles, or cellular components has been limited. However, such interactions are important not only for fundamentals in cancer biology but also in the design of translational constructs. This talk will describe how drug-loaded gold nanostars can behave as optical nano-probes to interrogate how therapeutic nanoconstructs interact with cells at the nanoscale. To demonstrate the generality of our approach, we will focus on different cancer cell systems to visualize how gold nanostar nanoconstructs target cell receptors, rotate and translate on the plasma membrane, are endocytosed, and are trafficked intracellularly. Finally, we will discuss how the different motions provide insight into how engineered nanoconstructs retain their targeting abilities in live cell environments.



**Wednesday, April 24th, 2024**



**3:30 pm**



**WTHR 104**