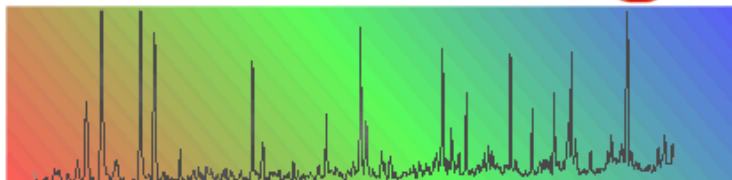




# SAS-Chicago



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## November Meeting

Tuesday, November 9, 2010

The November 2010 meeting will be held at the Holiday Inn, located at 1000 Busse Road, Elk Grove Village, IL 60007. See the map on the last page.

Social Hour: 5:30 PM

Dinner: 6:30 PM

Speaker: 7:30 PM

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## Designing Plasmonic Substrates for Ultra-sensitive Molecular Sensing

**Prof. Teri W. Odom**  
*Northwestern University*

To accelerate progress in label-free biological and chemical sensing, rational design must play an increasingly important role in developing *platforms* so that plasmonic materials or structures are not selected based on history or precedent but because of their optimal properties. For example, one grand challenge in plasmon-based sensing is to achieve single (bio)molecule sensitivity, but there have been only a few reports on how to tune the geometry of the metal nanostructures or their materials composition for a wide range of chemical environments. A methodical strategy to uncover the most important factors for designing molecular sensors based on plasmonic crystals is critical. This problem is significant because it is not obvious how metal substrates should be designed to achieve the highest sensitivity and selectivity, nor is it understood how different substrate materials could affect the binding kinetics of proteins.

This talk will describe a new architecture for label-free sensing: nanopyramidal lattices. This platform allows for a systematic approach to uncover the nanostructure design principles that can improve the detection of molecules as well as ligand-protein binding kinetics. For example, nanopyramidal gratings support two types of surface plasmons—propagating and localized—that can result in highly localized and concentrated electromagnetic fields as well as extended sensing volumes. Enabling features of this platform include (1) simplicity in manufacturing; (2) inexpensive, disposable substrates; and (3) large ( $> 1 \text{ in}^2$ ) nanopatterned areas.

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Please make your dinner reservations for the upcoming meeting by email at [sas.chicago1@gmail.com](mailto:sas.chicago1@gmail.com), using our online form <<http://www.sas-chicago.org/Online%20Registration%20at%20Elk%20Grove%20Holiday%20Inn%20.htm>> or by calling Slav Stepanovich at 847-421-2056. Leave **your name, company affiliation, a telephone number, the number of reservations and your choice of entree**. Please call by **noon Friday, November 5th**, so that proper arrangements can be made with the restaurant. Credit card payments must be made online at <[sas-chicago.bbnow.org](http://sas-chicago.bbnow.org)> prior to the meeting. Only payment by cash and check will be accepted at the meeting. Contact us if you can't attend; the SAS is charged for no-shows.

**Entree choices: London Broil, Chicken Marsala, or Pasta Primavera**

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Dinner Cost Members: \$30

Students and Unemployed Members: \$10

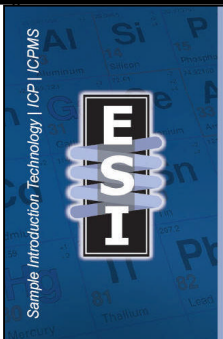
Non-members: \$35

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Teri W. Odom is associate professor and Dow Chemical Company Research Professor in the Department of Chemistry and Materials Science and Engineering at Northwestern University. Her research focuses on controlling materials at the 100-nm scale and investigating their size and shape-dependent properties. She has developed multi-scale nanopatterning tools that can generate noble metal (plasmonic) structures with exceptional optical properties. For example, arrays of nanoholes and nanopyramids are new plasmonic metamaterials also capable of ultra-sensitive molecular detection. Pyramidal nanoparticles can be used in imaging and therapeutic applications. Odom has also pioneered an approach for assembling functional nanomaterials, called chemical nanofabrication. Odom has received numerous awards and honors, including a Director's Pioneer Award from the National Institutes of Health; the Materials Research Society Outstanding Young Investigator Award; the National Fresenius Award from Phi Lambda Upsilon and the American Chemical Society; and a David and Lucile Packard Fellowship in Science and Engineering.

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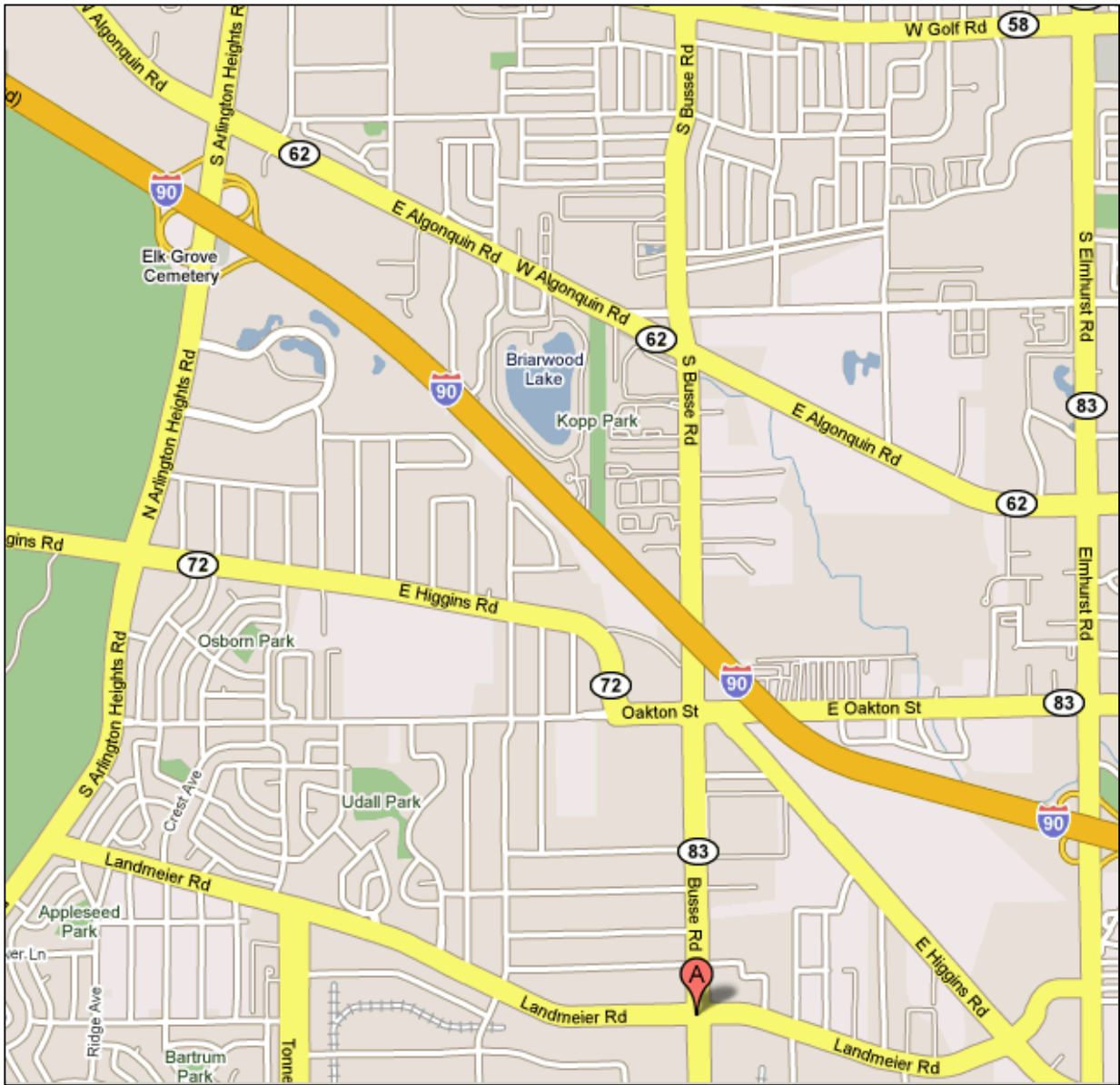
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