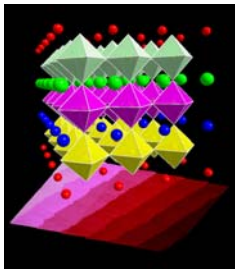
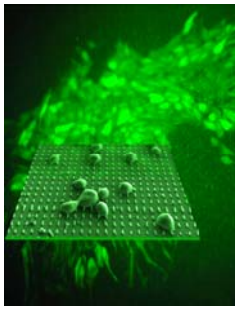
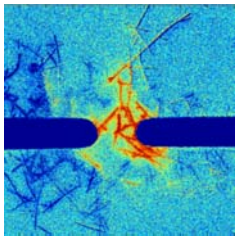
CNMS DISCOVERY SEMINAR SERIES

Friday, January 9, 2009
11:00 am
Iran Thomas Auditorium, 8600







"Dynamic Imaging of Individual Serotonin Transporter Proteins with Drug-Conjugated Nanocrystals"

Sandra J. Rosenthal
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Abstract:
Fluorescent quantum dots are a powerful tool for fluorescent imaging in biology. Through an iterative process of synthesis, Rutherford backscattering spectroscopy, and aberration corrected, atomic number contrast, scanning transmission electron microscopy (Z-STEM) we created core/shell nanocrystals with greater than 95% fluorescent quantum yield. We developed a drug-conjugated nanocrystal strategy to image cell surface receptor proteins; with a special emphasis on the serotonin transporter protein (SERT). SERT clears the neurotransmitter serotonin from the extracellular space following release and is the target of the serotonin selective reuptake inhibitors (SSRIs) typified by Prozac@. Utilizing our drug-conjugated nanocrystals we have imaged the dynamics of individual SERT proteins using line scanning confocal microscopy.

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Center for Nanophase Materials Sciences