

Wednesday, March 8, 2017

LSC 3 | 12:00 - 1:00PM



## Dr. Russ Algar

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### “The Small Matter of Bioanalysis: Adventures at Less Than 10 nm with Fluorescent Nanoparticles and/or FRET”

Bioanalysis encompasses a wide range of quantitative measurements for biomolecular targets and on biological systems, spanning from in vitro diagnostics to cellular imaging. Nanomaterials have had significant impact in this field because their unique and often size-dependent properties can provide new capabilities and new opportunities. In turn, Förster resonance energy transfer (FRET) is perhaps the most powerful biochemical method to never win a Nobel prize. This presentation will summarize some of our recent and ongoing research near the intersection of these two areas. The goal is to acquaint the audience with new materials and methods that may be of potential interest to them. The presentation will introduce luminescent materials such as quantum dots (QDs), polymer dots (Pdots), and lanthanide complexes, and show how the unique physical and optical properties of these materials can be leveraged in proof-of-concept applications such as smartphone-based assays (e.g. toward point-of-care diagnostics), multifunctional bioprobes (e.g. toward imaging of cell signaling cascades), photonic logic probes, activity-based enzyme assays, and more. It is hoped that this presentation will stimulate discussion between my group and researchers at CBR and identify areas of overlap and possible collaboration.

**Live Online Seminar Viewing:**  
<http://tinyurl.com/cbrseminaronline>