

CHEMICAL ENGINEERING

SEMINAR SERIES



WILLIAM A. TISDALE

Monday, January 11

Assistant Professor, Chemical Engineering
Charles & Hilda Roddey Career Development Professor
Massachusetts Institute of Technology

Excitons, Disorder, and Nonequilibrium Transport in Semiconductor Nanomaterials

ABSTRACT: In nanostructured materials, the short length and time scales over which energy moves can present transport behavior that deviates from classical constitutive laws. Using a combination of ultrafast spectroscopy, time-resolved optical microscopy, and kinetic Monte Carlo simulation, I will show how these effects manifest in assemblies of colloidal quantum dots (QD), which are exciting components in next-generation energy conversion technologies. In particular, we will explore the effect of structural and energetic disorder, the role of nanocrystal surface chemistry, and the self-organization of these nanomaterials into ordered heterostructures.

BIO: Will Tisdale joined the Department of Chemical Engineering at MIT in 2012, where he is the Charles & Hilda Roddey Career Development Assistant Professor. His research program is focused on the development and study of nanoscale semiconductor materials for use in next-generation energy technologies. Will earned his B.S. in Chemical Engineering from the University of Delaware in 2005, his Ph.D. in Chemical Engineering from the University of Minnesota in 2010, and then completed at postdoc in the Research Laboratory of Electronics at MIT before joining the faculty in 2012. He is a recipient of the DOE Early Career Award, the NSF CAREER Award, a 3M Non-Tenured Faculty Award, and MIT's Everett Moore Baker Award for Excellence in Undergraduate Teaching.

RECEPTION 3:30 • LECTURE 4:00 - 5:00
ELECTRICAL ENGINEERING BLDG. (EEB) 125



CHEMICAL ENGINEERING

UNIVERSITY of WASHINGTON

Knowledge and solutions for a changing world