

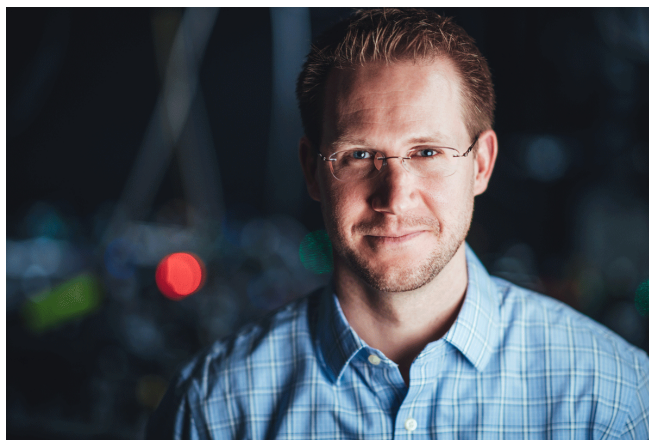
# Boston Area Exctionics Seminar

March 9, Food: 6:00 pm, Talk: 6:15 pm  
12 Oxford St, Division room

## **Excitons, Disorder, and Nonequilibrium Transport in Semiconductor Nanomaterials**

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### **Abstract**

In semiconductor nanomaterials, spatial confinement and structural heterogeneity can present transport behavior that deviates markedly from the bulk phase. 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) and atomically thin two-dimensional semiconductors. As an area of emerging focus in my group, I will highlight some of the intriguing and counterintuitive aspects of exciton transport, annihilation, and interfacial transfer in 2D materials.

### **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 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 was a postdoc in the Research Laboratory of Electronics at MIT before joining the faculty in 2012. He is a recipient of the Presidential Early Career Award for Scientists and Engineers (PECASE), the DOE Early Career Award, the NSF CAREER Award, an Alfred P. Sloan Fellowship, and MIT's Everett Moore Baker Award for Excellence in Undergraduate Teaching.

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