

DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE
SEMINAR SERIES
FALL 2022

WEDNESDAY, OCTOBER 19, 2022
TIERNAN HALL – LECT. HALL 1
1:00PM-2:20PM

GUEST SPEAKER

Dr. Joseph Subotnik
Edmund J. and Louise W. Kahn Term Professor of Chemistry
Department of Chemistry
University of Pennsylvania
Philadelphia, PA

TOPIC

Electron transfer: The Phenomenon That Never Ceases to Amaze The Chemist

ABSTRACT

The theory of electronic (and energy) transfer is a continuous source of inspiration for physical chemists. While Marcus theory lays out some basic rules for assessing how electron transfer occurs, the most interesting details are usually left out of such a picture: how exactly do nuclei and electrons couple together to produce such an interesting phenomena? Do all nuclei play a role or only some? How important is the solvent? Do we need to understand “coherence” and if so when? And lastly, can the spin of an electron be important? In this talk, I will go over some basic answers to these questions and highlight for the audience which questions are not yet fully answered.

BIO

Joe Subotnik received his BA degree from Harvard University in 2000 majoring in physics and math. He earned a PhD in biophysics from Berkeley in 2006 with Martin Head-Gordon, focusing on electronic structure theory and local correlation. He then was an NSF postdoctoral fellow at Tel-Aviv University with Abe Nitzan (2007-2009), where he studied chemical dynamics and molecular transport. Afterwards, he spent a year (2009-2010) with Mark Ratner at Northwestern University. He started as an assistant professor at the University of Pennsylvania in 2010 and is currently the Edmund J. and Louise W. Kahn Term Professor Chemistry. His research focuses on understanding friction, nonadiabatic motion, spin dynamics, and light-matter interactions in electronically excited molecules and materials.

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