University of Minnesota
Driven to Discover℠

Department of Chemistry

Dow Lecture Series

9:45 a.m. Thursday, February 19, 2015 • 331 Smith Hall

Anna Krylov

Professor
University of South California, Los Angeles

Excited-State Electron Transfer in Fluorescent Proteins: Curse or Blessing?

Research focus is in electronic structure theory and ab initio methodology
Website: http://iopenshell.usc.edu

Abstract

Fluorescent proteins from the GFP family are indispensable tools for in vivo imaging and sensing. As in organic dyes, photoinduced redox processes may intertwine with the FP photocycle. Photoinduced oxidation/reduction affects spectral properties of FPs; it can be exploited in photoconversions and in redox sensors. These processes also contribute to photobleaching and phototoxicity. The results of theoretical modeling of photoinduced electron transfer in green and yellow FPs will be presented.The calculations allowed us to identify the key residues involved in electron transfer. The theoretical predictions have been validated experimentally by mutagenesis. Methodological aspects of the theoretical description of excited-state processes will also be discussed.

Host: Professor Laura Gagliardi
Refreshments will be served prior to the seminar.