

Cory Nelson



Graduate Institution: University of Texas-Austin

Location: Austin, Texas

Graduate Discipline: Analytical Chemistry

Hometown: Eagan, MN

Research Interests:

I am interested in quantum dots and their application to solar energy, particularly in the area of interfacial charge transfer and electronic coupling between quantum dots and surfaces. My goal is to understand hot electron transfer and how to select and tune hot electron extraction. A breakthrough in this area could lead to very efficient (~66%) solar cells.

I am also interested in biological surfaces and tailoring surfaces to selectively adsorb specific types of proteins. These selective surfaces enrich for a low abundance proteins so that they can be detected using either mass spectrometry or protein assays. The hope is to develop early warning for diseases such as cancer and heart disease.

Finally I am extremely interested in lasers and optics, especially nonlinear optics, femtosecond lasers and their uses in surface science. We routinely use of surface second harmonic generation and electric field induced second harmonic generation (EFISH) to probe ultrafast carrier dynamics.

About me:

I completed my undergraduate work at the University of Wisconsin at Madison. After I graduated I stayed for a year as a research assistant where I worked on developing materials for protein enrichment. Here at the University of Texas at Austin currently pursuing a PhD in analytical chemistry with Professor Xiaoyang Zhu.

During my time at these two universities I have also been involved in mentoring undergraduates and high school students. Currently I am involved as a mentor to high school students in the UT systems Welch Scholars program.

In my free time I enjoy international traveling and learning new languages, playing classical piano and trumpet, and reading David Foster Wallace novels and short stories.



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