



Dr. Stephen K. Gray

Senior Scientist and Group Leader

Theme: Theory and Modeling

Phone: 630-252-3594

Fax: 630-252-4646

E-mail: gray@anl.gov

Argonne National Laboratory

Center for Nanoscale Materials

9700 S. Cass Ave., Building 440

Argonne, Illinois 60439

Ph.D., University of California, Berkeley

Research Summary:

I am interested in the theory and modeling of dynamical processes in nanosystems. Particular emphasis is placed on modeling light interactions with metallic nanostructures via rigorous electrodynamics simulations. I also study the quantum dynamics of molecular systems within nanoscale environments.

Selected Recent Publications:

Exciting Surface Plasmon Polariton Propagation Lengths Via Coupling To Asymmetric waveguide structures, J. M. Montgomery and S. K. Gray, *Phys. Rev. B* **77**, 125407 (2008)

Quantum States Of The Endohedral Fullerene Li@C₆₀, M. Zhang, L. B. Harding, S. K. Gray and S. A. Rice, *J. Phys. Chem. A* **112**, 5478-5485 (2008)

Systematic Computational Study Of The Effect Of Silver Nanoparticle Dimers On The Coupled Emission From Nearby Fluorophores, M. H. Chowdhury, J. Pond, S. K. Gray, and J. R. Lakowicz, *J. Phys. Chem. C* **112**, 11236-11249 (2008)

Seeing Molecules By Eye: Surface Plasmon Resonance Imaging At Visible Wavelengths With High Spatial Resolution And Submonolayer Sensitivity, J. M. Yao, M. E. Stuart, J. Maria, T. W. Lee, S. K. Gray, J. A. Rogers, and R. G. Nuzzo, *Angew. Chem. Int. Ed.* **47**, 5013-5017 (2008)

Stochastic Model For Photoinduced Surface Relief Grating Formation Through Molecular Transport In Polymer Films, M. Juan, J. Plain, P. Royer, S. K. Gray and G. P. Wiederrecht, *Appl. Phys. Lett.*, **93**, 153304 (2008)