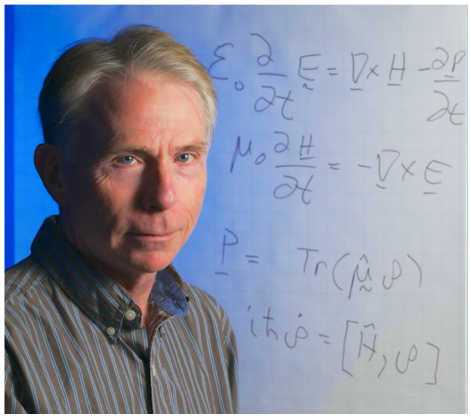

Stephen K. Gray
Group Leader and Senior Scientist

Theory and Modeling Group
Center for Nanoscale Materials
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439

1-630-252-3594
gray@anl.gov

Research:

Classical and quantum dynamics of light-matter interactions, with emphasis on plasmonics and hybrid plasmonic/semiconductor systems; quantum sensing and information.

Education:

Carleton University, Ottawa	Chemistry	BSc. 1977
University of California at Berkeley	Chemistry	Ph.D. 1982
Oxford University	Postdoctoral Research Associate	1982-84
The University of Chicago	Postdoctoral Research Associate	1984-86

Appointments:

1986 – 1990	Assistant Professor of Chemistry, Northern Illinois University
1990 – 2005	Chemist, Chemistry Division, Argonne National Laboratory
2005 – 2009	Senior Chemist, Chemical Sciences and Engineering Division, Argonne National Laboratory
2009 – 2019	Group Leader, Theory and Modeling Group, Center for Nanoscale Materials, Argonne National Laboratory
2019 – present	Senior Scientist, Theory and Modeling Group, Center for Nanoscale Materials, Argonne National Laboratory

Selected Publications (>250 publications; h-index = 67):

- C. L. Cortes, M. Otten and S. K. Gray, Non-Hermitian approach for quantum plasmonics, J. Chem. Phys. **152**, 084105 (2020).
- M. Otten and S. K. Gray, Recovering noise-free quantum observables, Phys. Rev. A **99**, 012338 (2019).
- M. Hensen, T. Heilpern, S. K. Gray, and W. Pfeiffer, Strong Coupling and Entanglement of quantum emitters embedded in a nanoantenna-enhanced cavity, ACS Photonics, **5**, 240 (2018).
- N. Sule, Y. Yifat, S. K. Gray, and N. F. Scherer, Rotation and negative torque in electrodynamically bound nanoparticle dimers. Nano Letters **17**, 6548-6556 (2017).
- E. R. MacQuarrie, M. Otten, S. K. Gray and G. D. Fuchs, Cooling a mechanical resonator using nitrogen-vacancy centres using a room temperature excited-state spin interaction, Nature Comm. **8**, 14358 (2017).
- N. Zhang, C. Han, Y.-J. Xu, J. J. Foley IV, D. Zhang, J. Codrington, S. K. Gray, and Y. Sun, Near-field dielectric scattering promotes optical absorption by platinum nanoparticles, Nature Photonics, **10**, 473-482 (2016).