

RICHARD SCHALLER

Physical Chemist

Nanophotonics & Biofunctional
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Education

Ph.D. University of California, Berkeley, 2002
B.A./M.S. Northwestern University, 1997

Awards and honors

2012 Kavli Participant, National Academy of Sciences
2008 Los Alamos Award Program
2006 Distinguished Postdoctoral Performance Award, Individual
2005 Los Alamos Postdoctoral Publication Prize in Experimental Sciences
2004 Frederick Reines Distinguished Postdoctoral Fellowship, Los Alamos
2002 Director's Postdoctoral Fellowship, Los Alamos

Research interests

- Static and transient optical measurements
- Energy transduction, CBRNE sensing
- Thermal processes and dissipation
- Novel materials, probes, and phenomena

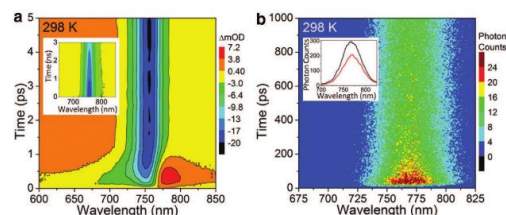
Professional Experience

Argonne National Laboratory - Center for Nanoscale Materials (CNM) Scientist	<i>2010-present</i>
Northwestern University, Department of Chemistry Assistant Professor	<i>2010-present</i>
Los Alamos National Laboratory Physical Chemistry and Applied Spectroscopy Guest Scientist	<i>2010-2012</i>
Los Alamos National Laboratory Physical Chemistry and Applied Spectroscopy Permanent Staff Member	<i>2006-2010</i>
Isomedix Gamma Processing Test Center NRC-Licensed Gamma Irradiator Operator	<i>1994-1997</i>

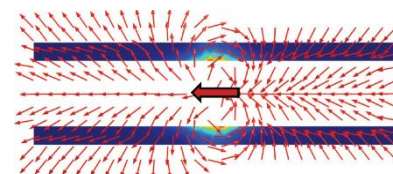
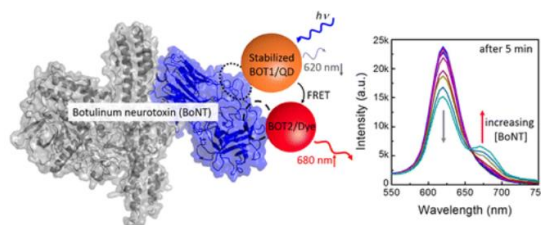
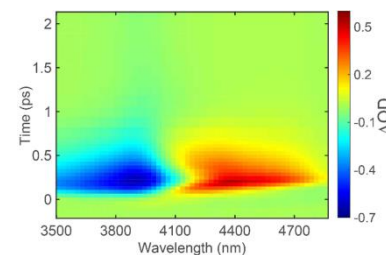
Selected Publications

Selected from 100+ publications:

1. A.Y. Chang, Y.-J. Cho, K.-C. Chen, C.-W. Chen, A. Kinaci, M.K.Y. Chan, H.-W. Lin, R.D. Schaller "Slow Organic-to-Inorganic Sub-Lattice Thermalization in Methylammonium



- Lead Iodide Perovskites Observed by Ultrafast Photoluminescence”, *Adv. Energy Mater.* **2016**, *6*, 1600422.
2. M.S. Kirschner, C.M. LeThiec, X.-M. Lin, G.C. Schatz, L.X. Chen, and R.D. Schaller “Size dependent coherent phonon plasmon modulations and deformation characterization in gold bipyramids and nanojavelins”, *ACS Photonics*, **2016**, *3*, 758-763.
 3. P. Guo, R.D. Schaller, J.B. Ketterson, R.P.H. Chang “Ultrafast Switching of Tunable Infrared Plasmons in Indium Tin Oxide Nanorod Arrays with Large Absolute Amplitude” *Nature Photonics* **2016**, *14* 267-273.
 4. Y. Li, R.D. Schaller, M. Zhu, D.A. Walko, J. Kim, X. Ke, L. Miao, and Z.Q. Mao, “Strong lattice correlation of non-equilibriums in a pseudospin-1/2 Mott insulator Sr_2IrO_4 ” *Nature Sci. Rep.* **2016**, *6*, 19302.
 5. J.S. Lee, M. Asplund, R. Wilton, C.E. Rowland, J. Carlson, E. Rozhkova, D. Schabacker, R.D. Schaller “Fast, Ratiometric FRET from Quantum Dot Conjugated Stabilized Single Chain Variable Fragments for Quantitative Botulinum Neurotoxin Sensing” *Nano Lett.* **2015**, *15*, 7161-7.
 6. Y. Yu, C.E. Rowland, R.D. Schaller, B.A. Korgel “Synthesis and Ligand Exchange of Thiol-Capped Silicon Nanocrystals” *Langmuir* **2015**, *31*, 6886-93.
 7. C. She, I. Fedin, D.S. Dolzhenkov, P.D. Dahlberg, G.S. Engel, R.D. Schaller, and D.V. Talapin “Red, Yellow, Green, and Blue Amplified Spontaneous Emission and Lasing Using Colloidal Nanoplatelets” *ACS Nano* **2015**, *9*, 9475-85.
 8. I. Robel, A. Shabaev, D.C. Lee, R.D. Schaller, J.M. Pietryga, S.A. Crooker, A.I. Efros, V.I. Klimov “Temperature and Magnetic-Field Dependence of Radiative Decay in Colloidal Germanium Quantum Dots” *Nano Lett.* **2015**, *15*, 2685-92.
 9. C.E. Rowland, I. Fedin, H. Zhang, A.O. Govorov, S.K. Gray, D.V. Talapin, R.D. Schaller “Picosecond Energy Transfer and Multiexciton Transfer Outpaces Auger Recombination in Binary CdSe Nano-Platelet Solids” *Nature Materials* **2015**, *14*, 484-9.
 10. C.E. Rowland, D.C. Hannah, A. Demortiere, J. Yang, R.E. Cook, V.B. Prakapenka, U. Kortshagen, R.D. Schaller “Silicon Nanocrystals at Elevated Temperatures: Retention of Photoluminescence and Diamond- to β -Silicon Carbide Phase Transition” *ACS Nano* **2014**, *8*, 9219.



Patents

- Carrier multiplication in quantum-confined semiconductor materials (LANL disclosure # 2004-081/S-104,817, 404,467; 20070099359 A1)
- A new method for real time measurement of shock pressure (NNSA disclosure# 2007/S-104,894, patent awarded 8135244 B1)
- Energy transfer in mixed nanocrystal films (LANL disclosure# 2008/S-109,183, serial #12,218,716, patent issued 7,888,855)