

David A. Reis

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Education

Ph.D. 1999 University of Rochester, Department of Physics and Astronomy.

M.A. 1995 University of Rochester, Department of Physics and Astronomy

B.A. 1993 University of California, Berkeley, Department of Physics

Professional Experience

2009–present Associate Professor, Photon Science Department, Stanford University ; Associate Professor, Applied Physics Department, University of Michigan

2007–2008 Associate Professor, Department of Physics, University of Michigan; Associate Professor, Applied Physics Program, University of Michigan

2001–2007 Assistant Professor, Department of Physics, University of Michigan; Assistant Professor, Applied Physics Program, University of Michigan

Jan.–Aug. 2006 Visiting Scientist, Stanford PULSE Center, Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center

1999–2001 Post-doctoral Fellow, Center for Ultrafast Optical Science, University of Michigan

Research Interests

My research interests include ultrafast processes in the solid state and fundamental light-matter interactions. In particular, our group is investigating nonequilibrium dynamics in solids with atomic level spatial and temporal resolution. Our tools include ultrafast optical laser and x-ray sources (as well as ultrafast x-ray lasers such as the Linac Coherent Light Source x-ray free-electron laser at SLAC).

Selected Publications

- [1] M. Trigo, Y. M. Sheu, D. A. Arms, J. Chen, S. Ghimire, R. S. Goldman, E. Landahl, R. Merlin, E. Peterson, M. Reason, and D. A. Reis. Probing unfolded acoustic phonons with x rays. *Physical Review Letters*, 101(2):025505, 2008. <http://dx.doi.org/10.1103/PhysRevLett.101.025505>
- [2] Y. M. Sheu, S. H. Lee, J. K. Wahlstrand, D. A. Walko, E. C. Landahl, D. A. Arms, M. Reason, R. S. Goldman, and D. A. Reis. Thermal transport in a semiconductor heterostructure measured by time-resolved x-ray diffraction. *Physical Review B (Condensed Matter and Materials Physics)*, 78(4):045317, 2008. <http://dx.doi.org/10.1103/PhysRevB.78.045317>

- [3] D. M. Fritz, D. A. Reis, B. Adams, R. A. Akre, J. Arthur, et al., Ultrafast bond softening in bismuth: Mapping a solid's interatomic potential with x-rays. *Science*, 315:633–636, February 2 2007. <http://dx.doi.org/10.1126/science.1135009>
- [4] D. A. Reis and A. M. Lindenberg. Ultrafast x-ray scattering in solids. In M. Cardona and R. Merlin, editors, *Light Scattering in Solids IX, Topics in Applied Physics*, volume 108, pages 371–422. Springer, 2007. http://dx.doi.org/10.1007/978-3-540-34436-0_6
- [5] A. M. Lindenberg, J. Larsson, K. Sokolowski-Tinten, K. J. Gaffney, C. Blome, et al., Atomic-scale visualization of inertial dynamics. *Science*, 308:392–395, 2005. <http://dx.doi.org/10.1126/science.1107996>
- [6] A. L. Cavalieri, D. M. Fritz, S. H. Lee, P. H. Bucksbaum, D. A. Reis, et al., Clocking femtosecond x-rays. *Phys. Rev. Lett.*, 94:114801, 2005. <http://dx.doi.org/10.1103/PhysRevLett.94.114801>
- [7] E. D. Murray, D. M. Fritz, J. K. Wahlstrand, S. Fahy, and D. A. Reis. Effect of lattice anharmonicity on high-amplitude phonon dynamics in photoexcited bismuth. *Phys. Rev. B*, 72(6):060301, 2005. <http://dx.doi.org/10.1103/PhysRevB.72.060301>
- [8] M. F. DeCamp, D. A. Reis, A. Cavalieri, P. H. Bucksbaum, R. Clarke, R. Merlin, E. M. Dufresne, D. A. Arms, A. M. Lindenberg, A. G. MacPhee, Z. Chang, B. Lings, J. S. Wark, and S. Fahy. Transient strain driven by a dense electron-hole plasma. *Phys. Rev. Lett.*, 91(16):165502, 2003. <http://dx.doi.org/10.1103/PhysRevLett.91.165502>
- [9] M. F. DeCamp, D. A. Reis, P. H. Bucksbaum, B. Adams, J. M. Caraher, R. Clarke, C. W. S. Conover, E. M. Dufresne, R. Merlin, V. Stoica, and J. K. Wahlstrand. Coherent control of pulsed x-ray beams. *Nature*, 413:825–828, October 2001. <http://dx.doi.org/10.1038/35101560>
- [10] D. A. Reis, M. F. DeCamp, P. H. Bucksbaum, R. Clarke, E. Dufresne, M. Hertlein, R. Merlin, R. Falcone, H. Kapteyn, M. M. Murnane, J. Larsson, Th. Missalla, and J. S. Wark. Probing impulsive strain propagation with x-ray pulses. *Phys. Rev. Lett.*, 86(14):3072–3075, 2001. <http://dx.doi.org/10.1103/PhysRevLett.86.3072>