

## JIE SHAN

Department of Physics  
Case Western Reserve University  
10900 Euclid Avenue  
Cleveland, OH 44106-7079

Tel: 1-216-368-4240  
Fax: 1-216-368-4671  
Email: jie.shan@case.edu

---

### Education:

- 2001 Ph.D. in Physics,  
Columbia University, New York, New York
- 1996 Diploma in Mathematics and Physics  
Moscow State University, Moscow, Russia

### Experience:

- Oct. 2001 – June 2002 Postdoc, Department of Physics, Columbia University,  
New York, New York
- July 2002 – present, Assistant Professor, Department of Physics, Case Western  
Reserve University, Cleveland, Ohio

### Honors and Awards:

- Glennan Fellow, Case Western Reserve University, 2005
- Presidential Research Initiative Award, Case Western Reserve University, 2005
- National Science Foundation CAREER Award, 2004
- Research Innovation Award, Research Corporation, 2004
- W. E. Rupp Assistant Professorship of Science & Engineering, Case Western  
Reserve University, 2002-5
- Optical Society of America New Focus Student Award, 2000
- Graduation with Honors, Moscow State University, 1996

### Research Interests:

- Nonlinear optical properties of nanomaterials
- Probing charge transport by terahertz (THz) time-domain spectroscopy in
  - bulk insulators
  - semiconductor quantum dots
  - organic semiconductors
- Application of polymeric materials for THz devices

### Recent Publications:

1. G. Dakovski, S. Lan, C. Xia, and J. Shan, "Terahertz Electric Polarizability of Excitons in PbSe and CdSe Quantum Dots," *J. Phys. Chem. C* **111**, 5904-5908 (2007).
2. F. Wang, J. Shan, M. Bonn, M. Islam, I. Herman, and T. F. Heinz, "Exciton Polarizability in Semiconductor Nanocrystals," *Nat. Mat.* **5**, 861-864 (2006).

3. G. Dakovski, B. Kubera, S. Lan, and J. Shan, "Finite Pump-Beam-Size Effects in Optical Pump-Terahertz Probe Spectroscopy," *J. Opt. Soc. Am. B* **23**, 139-141 (2006).
4. J. Shan, J. I. Dadap, I. Stiopkin, G. Reider, and T. F. Heinz, "Measurement of Optical Second-Harmonic Scattering from Spherical Nanoparticles," *Phys. Rev. A* **73**, Art. No. 023819 (2006).
5. G. Dakovski, B. Kubera, and J. Shan, "Generation of Terahertz Radiation via Optical Rectification from a Sub-wavelength Source," *J. Opt. Soc. Am. B* **22**, 1667-1670 (2005).
6. J. Shan and T.F. Heinz, "THz Radiation from Semiconductors," in *Ultrafast Dynamical Processes in Semiconductors*, edited by K.-T. Tsen (Springer-Verlag, Berlin, 2004), pp. 1-56. (*Topics in Applied Physics* **92**, 1-56 (2004))
7. E. Knoesel, M. Bonn, J. Shan, F. Wang, and T. F. Heinz, "Transient Conductivity of Solvated Electrons in Hexane Investigated with Time-Domain THz Spectroscopy," *J. Chem. Phys.* **121**, 394-404 (2004).
8. J. I. Dadap, J. Shan, and T. F. Heinz, "Theory of Second-Harmonic Generation from a Sphere of Centrosymmetric Material: Small Particle Limit," *J. Opt. Soc. Am. B* **21**, 1328-1347 (2004).
9. E. Hendry, F. Wang, J. Shan, T. F. Heinz, and M. Bonn, "Electron Transport in TiO<sub>2</sub> Probed by THz Time-Domain Spectroscopy," *Phys. Rev. B* **69**, Art. No. 081101 (2004).
10. J. Shan, F. Wang, E. Knoesel, M. Bonn, and T. F. Heinz, "Measurement of the Frequency-Dependent Conductivity of Sapphire," *Phys. Rev. Lett.* **90**, Art. No. 247401 (2003).