Jianming Dai, Ph.D.
Associate Professor (Research)
The Institute of Optics
University of Rochester
121 Wilmot Building/River Campus
275 Hutchison Road, Rochester, New York 14627, USA

Curriculum Vitae

RESEARCH INTERESTS:

1. Terahertz optoelectronics
2. Time-resolved ultrafast spectroscopy
3. Ultrafast lasers and phenomena
4. Near-field Optics and Nanophotonics

QUALIFICATIONS:

Extensive research experience in optics/nonlinear optics, opto-electronics/THz opto-electronics, nanophotonics, ultrafast lasers/phenomena, and ultrafast laser spectroscopy, with hands-on experience in:

1. Ultrafast THz time-domain spectroscopy (THz-TDS), including ultrafast optical or THz pump-probe spectroscopy.
2. Terahertz wave emitters and sensors, including terahertz air plasma emitter and sensor.
3. Terahertz wave quasioptics/THz wave planar waveguides.
4. Femtosecond lasers and laser systems: fs Ti:sapphire oscillators, diode-pumped all-solid-state fs laser, Ti:sapphire regenerative amplifier, fs optical parametric amplifier (OPA), and characterization of fs laser pulses.
5. Applications of scanning near-field optical microscope (SNOM) and scanning electron microscope (SEM).
6. Vacuum systems and electronics (boxcars, lock-in amplifiers, and pre-amplifiers etc.)
7. Proposal writing, project reporting, and lab management etc.

EXPERIENCE:

Nov. 2012~Present: The Institute of Optics, University of Rochester, Rochester, New York, U. S.
Associate Professor (Research)

Jan. 2012~Oct. 2012: The Institute of Optics, University of Rochester, Rochester, New York, U. S.
Scientist

Jan. 2010~Dec. 2011: The Center for THz Research, Department of Physics, Applied Physics and Astronomy, Rensselaer Polytechnic Institute, Troy, New York, U. S.
Research Associate Professor

May 2007~Dec. 2009: The Center for THz Research, Department of Physics, Applied Physics and Astronomy, Rensselaer Polytechnic Institute, Troy, New York, U. S.
Research Assistant Professor

Sept. 2005~Apr. 2007: The Center for THz Research, Department of Physics, Applied Physics and Astronomy, Rensselaer Polytechnic Institute, Troy, New York, U. S.
Research Associate

Aug. 2004~Aug. 2005: The Institute of Optics, University of Rochester, Rochester, New York, U. S.
Postdoctoral Research Fellow

Oct. 2002~Aug. 2004: School of Electrical and Computer Engineering, Oklahoma State University, Stillwater, Oklahoma, U. S.
Postdoctoral Research Fellow

Oct. 2001~Oct. 2002: Department of Chemistry (Institute for Lasers, Photonics and Biophotonics), the State University of New York at Buffalo, Buffalo, New York, U. S.
Postdoctoral Research Fellow

Sept.2000~Sept.2001: Department of Chemistry, Temple University, Philadelphia, Pennsylvania, U. S. A.
Postdoctoral Research Fellow

May 1999~Aug. 2000: College of Precision Instrument and Optoelectronics Engineering, Tianjin University, Tianjin 300072, P. R. China
Associate Professor

May 1998~May 1999: Department of Electronics Engineering, the Chinese University of Hong Kong, Hong Kong
Research Associate

Oct. 1994~May. 1998: College of Precision Instrument and Optoelectronics Engineering, Tianjin University, Tianjin 300072, P. R. China
Assistant Professor

EDUCATION:

Tianjin University, Ph.D. in Optics, 1994
Tianjin University, M.S. in Optics, 1991
Tianjin University, B.S. in Optics, 1988

PUBLICATIONS:

My Citations:

http://scholar.google.com/citations?hl=en&user=0ZKeMz4AAAAJ&view_op=list_works&pagesize=100

Selected Journal Papers:

1. Benjamin Clough, **Jianming Dai**, and X.-C. Zhang, "Laser air photonics: covering the "terahertz gap" and beyond", Invited paper on ***Materials Today*** 15, 50 (2012).
2. **Jianming Dai**, Jingle Liu, and X.-C. Zhang, "Terahertz Wave Air Photonics: Terahertz Wave Generation and Detection with Laser-Induced Gas Plasma", Invited paper on ***IEEE Journal of Selected Topics in Quantum Electronics*** 17, 183 (2011).

3. Jingle Liu, **Jianming Dai**, See Leang Chin, and X.-C. Zhang, "Broadband terahertz wave sensing using coherent manipulation of fluorescence from asymmetrically ionized gases", ***Nature Photonics*** 4, 627 (2010).
4. **Jianming Dai**, Nicholas Karpowicz, and X.-C. Zhang, "Coherent polarization control of terahertz waves generated from two-color laser-induced gas plasma", ***Physical Review Letters*** 103, 023001 (2009).
5. **Jianming Dai** and X.-C. Zhang, "Terahertz wave generation from gas plasma using a phase compensator with attosecond phase-control accuracy", ***Applied Physics Letters*** 94, 021117 (2009).
6. Nicholas Karpowicz, **Jianming Dai**, Xiaofei Lu, et al., "Coherent heterodyne time-domain spectrometry covering the entire "terahertz gap"", ***Applied Physics Letters*** 92, 011131 (2008).
7. **Jianming Dai**, Xu Xie, and X.-C. Zhang, "Terahertz wave amplification in gases with the excitation of femtosecond laser pulses", ***Applied Physics Letters*** 91, 211102 (2007).
8. Xu Xie, Jingzhou Xu, **Jianming Dai,** and X.-C. Zhang, "Enhancement of terahertz wave generation from laser induced plasma", ***Applied Physics Letters*** 90, 141104 (2007).
9. **Jianming Dai**, Xu Xie, and X.-C. Zhang, "Detection of broadband terahertz waves with a laser-induced plasma in gases", ***Physical Review Letters*** 97, 103903 (2006).
10. Xu Xie, **Jianming Dai**, and X.-C. Zhang, "Coherent control of THz wave generation in ambient air", ***Physical Review Letters*** 96, 075005 (2006).
11. A. K. Azad, **Jianming Dai**, and Weili Zhang, "Transmission properties of terahertz pulses through subwavelength double split-ring resonators", ***Optics Letters*** 31, 634 (2006).
12. **Jianming Dai**, H. Teng, and Chunlei Guo, "Second- and third-order interferometric autocorrelations based on harmonic generations from metal surfaces", ***Optics Communications*** 252, 173 (2005).
13. L. Thamizhmani, A. K. Azad, **Jianming Dai,** and W. Zhang, "Far-infrared optical and dielectric response of ZnS measured by terahertz time-domain spectroscopy", ***Applied Physics Letters*** 86, 131111 (2005).
14. **Jianming Dai**, S. Coleman and D. Grischkowsky, "Planar THz Quasioptics", ***Applied Physics Letters*** 85, 884 (2004).
15. **Jianming Dai**, Jiangquan Zhang, Weili Zhang, and D. Grischkowsky, "Terahertz Time-Domain Spectroscopy Characterization of the Far-Infrared Absorption and Index of Refraction of High-Resistivity, Float-Zone Silicon ", ***Jounal of Optical Society of America B*** 21, 1379 (2004).
16. Guang S. He, Tzu-Chau Lin, **Jianming Dai**, and Paras N. Prasad, "Degenerate two-photon-absorption spectral studies of highly two-photon active organic chromophores", ***Journal of Chemical Physics*** 120, 5275 (2004).
17. Yuzhen Shen, Tzu-Chau Lin, **Jianming Dai**, Przemyslaw Markowicz, and Paras N. Prasad, "Near-Field Optical Imaging of Transient Absorption Dynamics in Organic Nanocrystals", ***The Journal of Physical Chemistry B*** 107, 13551 (2003).
18. Guang S. He, **Jianming Dai**, Tzu-Chau Lin, Przemyslaw Markowicz, and Paras N. Prasad, "Ultrashort 1.5-μm laser excited upconverted stimulated emission based on simultaneous three-photon absorption", ***Optics Letters*** 28, 719 (2003).

Patents

1. X.-C. Zhang, **Jianming Dai**, Xu Xie, "Method and system for plasma-induced terahertz spectroscopy", (**US Patent#7652253**, awarded on January 26, 2010)
2. X.-C. Zhang, **Jianming Dai**, Xu Xie, "Methods and systems for generating amplified Terahertz radiation for analyzing remotely-located objects" (**US Patent#7718969**, awarded on May 18, 2010)

3. X.-C. Zhang, **Jianming Dai**, Xu Xie, "Methods and systems for enhancement of Terahertz wave generation for analyzing a remotely-located object" (**US Patent#7595491**, awarded on September 29, 2009)
4. X.-C. Zhang, **Jianming Dai**, Xu Xie, "Method of analyzing a remotely-located object utilizing an optical technique to detect terahertz radiation" (**US Patent#7531802**, awarded on May 12, 2009)
5. X.-C. Zhang, **Jianming Dai**, Xu Xie, "Method and system for plasma-induced terahertz spectroscopy", (**US Patent#8134128**, awarded on March 13, 2012)

Membership

1. **Member** and **reviewer** of Optical Society of America (reviewer of OSA)
2. **Reviewer** of *Nature Photonics*
3. **Reviewer** of *Materials Chemistry and Physics*
4. **Reviewer** of *Journal of Physical Chemistry*
5. **Committee members** of CLEO/IQEC'09 and CLEO/QELS'10 (**session chair**)
6. **Committee member** of Technical Program Committee for IEEE Photonics Topical Meeting on THz technology 2010
7. **Committee members** of International Photonics and OptoElectronics Meetings (POEM) 2011 and 2012
8. **Session leader** on Workshop on Terahertz Sources for Time Resolved Studies of Matter at Argonne National Laboratory 2012 (July 30~31, 2012)

Awards

1. "The development of femtosecond laser technology", ***China National Science and Technology Progress Award***, Second Place, 1999
2. "Self-starting femtosecond laser systems", ***China National Science and Technology Progress Award by the Ministry of Education***, First Place, 2004
3. "The mechanism and technology of solid-state femtosecond lasers", ***China National Science and Technology Progress Award by the Ministry of Education***, Second Place, 1999