Curriculum Vitae

R. Jason Jones
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Chronology of Education

University of New Mexico	Optical Science	Ph.D. 2001
Bethel College (St. Paul, MN)	Physics	B.S. 1994

Doctoral Dissertation

Title: "High Resolution Optical Frequency Metrology with Stabilized Femtosecond Lasers"
Advisor: Professor Jean-Claude Diels

Major field: Atomic, Molecular, and Optical Physics

Chronology of Employment

- Associate Professor, College of Optical Sciences, University of Arizona, 8/12-present
- Assistant Professor, College of Optical Sciences, University of Arizona, 7/06 – 8/12
- Senior Research Associate, JILA, University of Colorado, 11/04 - 07/06
- Research Associate, JILA, University of Colorado, 11/03 – 11/04
- National Research Council Postdoctoral Research Associate, JILA, 11/01 – 11/03

Honors and Awards

- Kavli Fellow, National Academy of Sciences ("Frontiers of Science" 2010)
- DARPA Young Faculty Award (2009)
- NSF CAREER Award (2007)
- Young Scientist Award, Conference on Precision Electromagnetics (2002)
- National Research Council Postdoctoral Associateship Award (2001-2003)

Service and Outreach

National/International

- Committee member, OSA Advanced Solid-State Photonics (ASSP 2012).
- Committee member, OSA High-Intensity Lasers and High-Field Phenomena (HILAS 2012).
- Subcommittee chair, "Optical Metrology", OSA Conference on Lasers and Electro-Optics (CLEO 2010, CLEO 2011).
- Committee member, "Optical Metrology", OSA Conference on Lasers and Electro-Optics (CLEO 2008, CLEO 2009)
- Committee member, "Time and Frequency Metrology" SPIE Optics and Photonics (2009, 2011).

- Committee member, "Optical Frequency Combs and Applications," EPS Conference on Lasers and Electro-Optics (CLEO/Europe 2007).
- Conference chair, "Time and Frequency Metrology", SPIE Optics and Photonics (2007).
- Reviewer for *Physical Review Letters, Nature Photonics, Optics Letters, Optics Express, New Journal of Physics, and Reports on Progress in Physics.*
- Proposal Reviewer for AFOSR, NSF, NASA, and European Science Foundation.
- Member of the American Physical Society and Optical Society of America.

Publications

Refereed Journal Articles

1 R. J. Jones, S. Gupta, R. K. Jain, and J. N. Walpole, "A near-diffraction-limited, high power, single longitudinal mode CW diode laser tunable from 960-980 nm," *Electron. Lett.* 31, 1668 (1995).

2 M. J. Bohn, R. J. Jones, and J.-C. Diels, "Mutual Kerr-lens mode-locking," *Opt. Comm.* 170, 85 (1999).

3 R. J. Jones, J.-C. Diels, J. Jasapara, and W. Rudolph, "Stabilization of the frequency, phase, and repetition rate of an ultra-short pulse train to a Fabry-Perot reference cavity," *Opt. Comm.* 174, 409 (2000).

4 R. J. Jones and J.-C. Diels, "Stabilization of femtosecond lasers for optical frequency metrology and direct optical to radio frequency synthesis," *Phys. Rev. Lett.* 86, 3288 (2001).

5 R. J. Jones, W.-Y. Cheng, K. W. Holman, L. Chen, J. L. Hall and J. Ye, "Absolute-frequency measurement of the iodine-based length standard at 514.67 nm," *Appl. Phys. B* **74**, 597 (2002).

6 R. J. Jones and J. Ye, "Femtosecond pulse amplification by coherent addition in a passive optical cavity," *Opt. Lett.,* **27**, 1848 (2002).

7 L. Arissian, R. J. Jones and J.-C. Diels, "Stabilization of mode-locked trains, and dark resonance of two-photon lambda-level structures," *J. of Mod. Opt*., **49**, 2517 (2002).

8 Jun Ye, J.-L. Peng, R. J. Jones, K. W. Holman, J. L. Hall, David. J. Jones, S. Diddams, , J. Kitching, S. Bize, J. C. Bergquist, and L. W. Hollberg, L. Robertsson, and L.-S. Ma, "Delivery of high stability optical and microwave frequency standards over an optical fiber network," *J. Opt. Soc. Am. B*, **20**, 1459 (2003).

9 K. W. Holman, R. J. Jones, A. Marian, S. T. Cundiff and J. Ye, "Intensity-related dynamics of femtosecond frequency combs," *Opt. Lett.* **28**, 851 (2003).

10 K. W. Holman, R. J. Jones, A. Marian, S. T. Cundiff and J. Ye, "Detailed studies and control of intensity-related dynamics of femtosecond frequency combs from mode-locked Ti:sapphire lasers." *IEEE J. Sel. Topics Quant. Electron.* **9**, 1018 (2003).

11 E. Potma, R. J. Jones, X. S. Xie and J. Ye, "Passive optical amplifier for picosecond pulses" *Opt. Lett*., **28**, 1835 (2003).

12 R. J. Jones, K. W. Holman, I. Thoman and J. Ye, "Precise stabilization of a femtosecond laser comb to a high finesse, passive optical cavity," *Phys. Rev. A* **69**, 051803R/1-4 (2004).

13 R. J. Jones and J. Ye, "High-repetition-rate coherent femtosecond pulse amplification with an external passive optical cavity," *Opt. Lett.* **29**, 2812 (2004).

14 I. Thomann, E. Gagnon, R.J. Jones, A.S. Sandhu, A. Lytle, R. Anderson, J. Ye, M. Murnane and H. Kapteyn, "Investigation of a grating-based stretcher/compressor for carrier-envelope phase stabilized femtosecond pulses," *Opt. Express*, **12**, 3493 (2004).

15 M. Thorpe, R. J. Jones, K. D. Moll, J. Ye and R. Lalezari, "Precise measurement of optical cavity dispersion and mirror coating properties via femtosecond combs," *Opt. Express* **13,** 882 (2005).

16 K. Moll, R. J. Jones, M. Thorpe and J. Ye, "Nonlinear dynamics inside femtosecond enhancement cavities," *Opt. Express* **13,** 1672 (2005).

17 R. J. Jones, K. Moll, M. Thorpe and J. Ye, "Phase-coherent frequency combs in the EUV via high-harmonic generation inside a femtosecond enhancement cavity," *Phys. Rev. Lett.* **94,** 193201/1-4 (2005).

18 R. J. Jones, T. Ido, T. Loftus, M. Boyd, A. Ludlow, K. Holman, M. Thorpe, K. Moll, and J. Ye, "Stabilized femtosecond lasers for precision frequency metrology and ultrafast science," *Laser Physics* **15**, No. 7, 1-4 (2005).

19 D. D. Hudson, K. W. Holman, R. J. Jones, D. J. Jones, S. T. Cundiff, and J. Ye, "Mode-locked fiber laser phase-stabilized with an intracavity electro-optic modulator," *Opt. Lett.* **30**, 2928 (2005).

20 M.J. Thorpe, K.D. Moll, R.J. Jones, B. Safdi, J. Ye," Broadband cavity ringdown spectroscopy for sensitive and rapid molecular detection," *Science* **311**, 1595 (2006).

21 J. Paul, J. Johnson, J. Lee, and R. J. Jones, "High average power fs frequency comb from an optically injection locked amplification cavity," *Opt. Lett.* **33**, 2482 (2008).

22 M. Mansuripur, A. R. Zakharian, A. Lesuffleur, S. H. Oh, R. J. Jones, N. C. Lindquist, H. Im, A. Kobyakov, and J. V. Moloney, "Plasmonic nano-structures for optical data storage," *Opt. Express* **17**, 14001 (2009).

23 K. Kieu, R.J. Jones, and N. Peyghambarian, "High power femtosecond source near 1 micron based on an all-fiber Er-doped mode-locked laser," *Opt. Express* **18**, 21350 (2010).

24 K. Kieu, R.J. Jones, and N. Peyghambarian, "Generation of few-cycle pulses from an amplified carbon nanotube mode-locked fiber laser system," *IEEE Photonics Tech. Letters* **22**, 1521 (2010).

25 J. Paul, Y. Kaneda, T.-L. Wang, C. Lytle, J.V. Moloney, and R.J. Jones, "Precision spectroscopy of atomic mercury in the deep ultraviolet based on fourth-harmonic generation from an optically pumped external-cavity semiconductor laser," *Opt. Lett.* **36**, 61 (2011).

26 T.-H. Wu, K. Kieu, N. Peyghambarian, and R.J. Jones, "All fiber carbon nanotube based mode-locked laser system for generation of stable femtosecond frequency combs," *Opt. Express* **19**, 5313 (2011).

27 D.R. Carlson, J. Lee, J. Mongelli, E.M. Wright, and R.J. Jones, "Intracavity ionization and pulse formation in femtosecond enhancement cavities, " *Opt. Lett.* **36**, 2991 (2011).

28 Jane Lee, D.R. Carlson, and R.J. Jones, "Optimizing intracavity high harmonic generation for XUV fs frequency combs, " *Opt. Express* **19**, 23315 (2011).

29 M. Kolesik, E.M. Wright, J. Andreasen, J.M. Brown, D.R. Carlson, and R.J. Jones, "Space-time resolved simulation of femtosecond nonlinear light-matter interactions using a holistic quantum atomic model: Application to near-threshold harmonics," *Opt. Express* 2012 (*accepted*).

30 D.R. Carlson and R.J. Jones, "Time-resolved measurements of ionization dynamics using the nonreciprocal resonance of pump-probe pulse trains in a femtosecond enhancement cavity, " (*Submitted*).

Edited Books and Other Scholarly Publications (last 5 years)

1 Masud Mansuripur, A. R. Zakharian, A. Lesuffleur, Sang-Hyun Oh, R. J. Jones, N. C. Lindquist, Hyungsoon Im, A. Kobyakov and J. V. Moloney, "Plasmonic nano-structures for optical data storage", Proc. SPIE 7505, 75050I (2009).

2 R.J. Jones, "Enhanced Quantum Light Generation," *Nature Photonics*, (News and Views) **4**, 138 (2010*). [Invited non-peer reviewed publication]*

3 Jane Lee, Justin Paul, David Carlson, and R. J. Jones, "High Power Femtosecond Frequency Comb for Intracavity High Harmonic Generation," Proceedings of 17th International Conference on Ultrafast Phenomena, M. Chergui, DM Jonas, E Riedle, RW Schoenlein, and AJ Taylor, Eds., Oxford University Press, 781 (2010).

4 D. R. Carlson, John Mongelli, E. M. Wright and R. J. Jones, "Numerical simulations of high intensity pulse trains and plasma dynamics in passive femtosecond enhancement cavities", Proc. SPIE 8132, 813205 (2011).

Scholarly Presentations *(last 5 years)*

Conference Presentations (invited and regular submissions)

1 J. Paul, J. Johnson, J. Lee and R. J. Jones, "High average power fs frequency comb from an optically injection-locked amplification cavity," *Conference on Lasers and Electro-optics (CLEO '08)*, San Jose, CA, May 2008.

2 J. Paul, J. Lee, and R. J. Jones, "High Average Power fs Frequency Comb via Injection Locked Amplification for Intracavity HHG, " *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, 2008), paper FTuZ5.

3 R.J. Jones, J. Lee, and J. Paul, "Novel high power femtosecond laser system and progress towards improved EUV fs frequency combs", *Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP),* American Physical Society, Charlottesville, VA, May 19-23, 2009. Bulletin Am. Phys. Soc. 54, No. 7 (2009).

4 M. Mansuripur, A. Zakharian, Sang-Hyun Oh, R. J. Jones, A. Lesuffleur, N. C. Lindquist, Hyungsoon Im, A. Kobyakov, and J. V. Moloney, "Plasmonic optical data storage," *Optical Data Storage Conference,* Lake Buena Vista, Florida, May 2009. To be published as "Plasmonic nano-structures for optical data storage," in *SPIE proceedings*, Fall 2009.

5 M. Mansuripur, A. Zakharian, Sang-Hyun Oh, R. J. Jones, A. Lesuffleur, N. C. Lindquist, Hyungsoon Im, A. Kobyakov, J. V. Moloney, "Plasmonic Optical Data Storage," *Sir Mark Oliphant Conferences*: *Nano-photonics Down Under 2009 - Devices and Applications* (*SMO-NP 2009*), Melbourne, Australia, June 2009. (**Invited**)

6 M. Mansuripur, A. Zakharian, Sang-Hyun Oh, R. J. Jones, A. Lesuffleur, N. C. Lindquist, Hyungsoon Im, A. Kobyakov and J. V. Moloney, "Plasmonic Optical Data Storage," *Optical Storage and New Storage Technology* (OSNS), held in conjunction with Photonics and Opto-Electronics Meetings (POEM), Wuhan, China, August 2009. (**Invited**)

7 M. Mansuripur, A. Zakharian, Sang-Hyun Oh, R. J. Jones, A. Lesuffleur, N. C. Lindquist, Hyungsoon Im, A. Kobyakov, J. V. Moloney, "Plasmonic Optical Data Storage," *International Symposium on Optical Memory* (*ISOM*), Nagasaki, Japan, October 2009. (**Invited**)

8 Jane Lee, Justin Paul, David Carlson, and R. J. Jones, "High Power Femtosecond Frequency Comb for Intracavity High Harmonic Generation," *17th International Conference on Ultrafast Phenomena*, Snowmass, CO, July 2010.

9 K. Kieu, T. Wu, N. Peyghambarian, and J. Jones, "All-Fiber Carbon Nanotube Based Mode-Locked Laser System for Generation of Stable fs Frequency Combs, " in *Conference on Lasers and Electro-Optics*, OSA Technical Digest (CD) (Optical Society of America, 2010), paper CMX4.

10 J. Paul, Y. Kaneda, T. Wang, C. Lytle, J. V. Moloney, and J. Jones, "Precision Spectroscopy of Atomic Mercury in the Deep Ultraviolet Based on Fourth-Harmonic Generation from an Optically Pumped External-Cavity Semiconductor Laser, " in *Conference on Lasers and Electro-Optics*, OSA Technical Digest (CD) (Optical Society of America, 2010), paper CTuS6.

11 K. Kieu, J. Jones, and N. Peyghambarian, "Generation of sub-20fs Pulses from an All-Fiber Carbon Nanotube Mode-Locked Laser System, " in *Conference on Lasers and Electro-Optics*, OSA Technical Digest (CD) (Optical Society of America, 2010), paper CTuII2.

12 Jane Lee, J. Paul, and J. Jones, "High Power Femtosecond Laser System for Intracavity High Harmonic Generation, " in *Conference on Lasers and Electro-Optics*, OSA Technical Digest (CD) (Optical Society of America, 2010), paper CThQ2.

13 R.J. Jones, "Intracavity high harmonic generation with fs frequency combs," in *High Intensity Lasers and High Field Phenomena*, OSA Technical Digest (CD) (Optical Society of America, 2011), paper HFB5.

14 J. Jones, D. Carlson, J. Lee, E. M. Wright, and J. Mongelli, "High harmonic generation with fs frequency combs and limitations due to intracavity plasma dynamics," in *Conference on Lasers and Electro-Optics*, OSA Technical Digest (CD) (Optical Society of America, 2011), paper CThB1.

15 David Carlson, John Mongelli, Ewan Wright, and R. Jason Jones, " Ionization dynamics inside femtosecond enhancement cavities," *Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP)*, American Physical Society, Atlanta, GA, June 13-17, 2011. Bulletin Am. Phys. Soc. 56, No. 5, N3.0005 (2011).

16 D. R. Carlson, John Mongelli, E.M. Wright, R.J. Jones, "Numerical simulations of high intensity pulse trains and plasma dynamics in passive femtosecond enhancement cavities," *SPIE Symposium, Time and Frequency Metrology III*, San Diego, CA, August 2011.

17 R. J. Jones, D.R. Carlson, J. Mongelli, and E.M. Wright, "XUV frequency combs and fundamental limits from intracavity ionization dynamics," *Ultrafast Optics VIII*, Monterey, CA, Sept. 26, 2011.

18 R.J. Jones, "VUV Frequency Combs and Fundamental Limits of Intracavity HHG due to Ionization Dynamics," *IEEE Photonics 2011, High Power, Solid State and Short Wavelength Lasers (HPSSSW),* October 2011. **(Invited)**