

Ronald Jason Jones

College of Optical Science, University of Arizona
1630 E. University Blvd., PO Box 210094
Tucson, AZ 85712
Phone: (520) 626-4634
Email: rjjones@optics.arizona.edu

Education

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

Appointments

- Assistant Professor, College of Optical Sciences, University of Arizona, 7/30/06 - present
- Senior Research Associate, JILA, University of Colorado, 11/2004- 7/29/06
- Research Associate, JILA, University of Colorado, 11/2003 – 11/2004
- National Research Council Postdoctoral Research Associate, JILA, 11/2001 – 11/2003
- Research Assistant
University of New Mexico, 1994-2001
Los Alamos National Laboratory, 1996
- Teaching Assistant, University of New Mexico, 1994-1999
- Mentor, University of New Mexico PURSUE Program, 1998
- Vice President of OSA Student Chapter, University of New Mexico, 1996-1997
- Teaching Assistant, Bethel College, 1992-1994
- Vice President, Society of Physics Students, Bethel College, 1993-1994
- REU Summer Internship, N.C. State University, 1993
- Research Internship, Cray Research, 1992

Awards and Honors

NSF CAREER Award 2007
Young Scientist Award, Conference on Precision Electromagnetics 2002.
National Research Council Postdoctoral Associateship Award, 2001-2003.
Bethel College Gruez Physics Award, 1993-1994.

Patents

- **Bi-directional short pulse ring laser** (U.S. Patent #6,650,682).
- **Frequency Comb Cavity Enhanced Spectroscopy** (CU TTO File No. CU1541B, Pending)

Current Funding and Support

- NSF CAREER Award (Feb. 2, 2007 – Jan. 31, 2012)
Principal Investigator
“Femtosecond Enhancement Cavities for Efficient Production of Extreme-Ultraviolet Radiation”.

Publications

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, "Frequency domain control of femtosecond pulse trains with Fabry-Perot reference cavities for optical frequency metrology," In *Ultrafast Phenomena XII*, 2000. Springer Series in Chemical Physics, vol. 66.
5. 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).
6. 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).
7. R. J. Jones and J. Ye, "Femtosecond pulse amplification by coherent addition in a passive optical cavity," *Opt. Lett.*, **27**, 1848 (2002).
8. Jun Ye, R. J. Jones, K. Holman, S. Foreman, David. J. Jones, S. T. Cundiff, J.L. Hall, T.M Fortier and A. Marian, "Control of coherent light and its broad applications," in *Atomic Physics 18* (ICAP 2002), AIP Proceedings **651**, (D. Pritchard and W. Ketterle, Eds., American Institute of Physics, 2003).
9. 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).
10. 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).
11. 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).

12. 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.* (in press).
13. E. Potma, R. J. Jones, X. S. Xie and J. Ye, "Passive optical amplifier for picosecond pulses" *Opt. Lett.*, **28**, 1835 (2003).
14. R. J. Jones, K. Holman, J. Ye, E. Potma, X. S. Xie, "Femtosecond Laser Stabilization: Time and Frequency Domain Applications," *IEEE Lasers and Electro-Optics Society (LEOS) Newsletter* **17**, No. 5, 11-12 (2003). (Hot Topics)
15. J. Ye, L. Chen, R. J. Jones, K. Holman and D.J. Jones, "Ultra-precise phase control of short pulses – applications to nonlinear spectroscopy," in Laser Spectroscopy XVI, P. Hannaford and H. Bachor, Eds., World Scientific, Singapore, 77 (2004). (Invited)
16. R. J. Jones, K. Holman, J. Ye, E. O. Potma, X. S. Xie, "Ultrafast-laser stabilization with application to pulse amplification by use of passive optical cavities," in Ultrafast Optics IV, F. Krausz, G. Korn, P. Corkum and I. Walmsley, Eds., Springer-Verlag, Berlin, 177 (2004).
17. J. Ye, R. J. Jones, L. Chen, K. Holman and D. Jones, "Applications of femtosecond laser comb to nonlinear molecular spectroscopy," in Lecture Notes in Physics, S.G. Karshenboim and E. Peik, Eds., Springer-Verlag **648**, 275-295 (2004). (Invited)
18. J.-C. Diels, R. J. Jones and L. Arissian, "Applications to sensors of extreme sensitivity," in Femtosecond Optical Frequency Comb: Principal, Operation and Applications, J. Ye and S. Cundiff, Eds., Kluwer Academic Publishers, 333-354 (2005).
19. 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).
20. R. J. Jones and J. Ye, "High-repetition-rate coherent femtosecond pulse amplification with an external passive optical cavity," *Opt. Lett.* **29**, 2812 (2004).

21. 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).
22. 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).
23. K. Moll, R. J. Jones, M. Thorpe and J. Ye, "Nonlinear dynamics inside femtosecond enhancement cavities," *Opt. Express* **13**, 1672 (2005).
24. 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).
25. K. Holman, D.J. Jones, R. J. Jones and J. Ye, "Frequency transfer of optical standards through a fiber network using 1550-nm mode-locked sources," in Proceedings of 14th International Conference on Ultrafast Phenomena, T. Kobayahsi, T. Okada, T. Kobayashi, K. Nelson, S. De Silvestri, Eds., Springer-Verlag, 834-836 (2004).
26. R. J. Jones, K. Moll, M. Thorpe and J. Ye, "Coherent amplification of femtosecond pulses with passive enhancement cavities," in Proceedings of 14th International Conference on Ultrafast Phenomena, T. Kobayahsi, T. Okada, T. Kobayashi, K. Nelson, S. De Silvestri, Eds., Springer-Verlag, 16-18 (2004).
27. 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).
28. J. Ye, S. Blatt, M.M. Boyd, S.M. Foreman, J.L. Hall, T. Ido, R.J. Jones, A.D. Ludlow, A. Marian, K. Moll, M. Notcutt, M. Stowe, M. Thorpe, and T. Zelevinsky, "Precision measurement meets ultrafast control," in Proceedings, 2005 International Conference on Laser Spectroscopy (in press).
29. 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).
30. 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).

INVITED/CONTRIBUTED PRESENTATIONS

1. S. Gupta, R.J. Jones, R.K. Jain, and J.N. Walpole, "A high-power (~2 W) external-cavity cw diode laser tunable from 960-980 nm", *Semiconductor Lasers: Advanced Devices and Applications*, Keystone Colorado, 1995, TuC3-2. Optical Society of America and IEEE/Lasers and Electro-Optics Society.
2. X.M. Zhao, R. J. Jones, C.E.M. Strauss, D. J. Funk, J.P. Roberts, A.J. Taylor, "Control of femtosecond pulse filament formation in air through variation of the initial chirp of the pulse" *Conference on Lasers and Electro-optics (CLEO '97)*, CThL34, Baltimore, MD, 1997, Optical Society of America.
3. R.J. Jones, M.J. Bohn, and J.-C. Diels, "Mutual Kerr-lens mode-locking", *Conference on Lasers and Electro-optics (CLEO '98)*, CWC5, San Francisco, CA, 1998. Optical Society of America.
4. R.J. Jones and J.-C. Diels, "Frequency stabilization of a mode-locked bi-directional Ti:sapphire laser for high-resolution differential intra-cavity phase spectroscopy." *Bulletin of the American Physical Society*, 44(1), 1999 Centennial Meeting. DP01 28, Atlanta, Georgia.
5. R.J. Jones and J.-C. Diels, "Frequency and phase stabilization of femtosecond light pulses to a Fabry-Perot reference cavity", *Opto-Southwest*. Albuquerque, NM (2000).
6. R.J. Jones and J.-C. Diels, "Stabilization of the frequency and repetition rate of a femtosecond pulse train to a Fabry-Perot reference cavity", *European Conference on Lasers and Electro-optics (CLEO Europe 2000)*, Nice, France, 2000.
7. R.J. Jones and J.-C. Diels, "Frequency and phase stabilization of femtosecond light pulses to a Fabry-Perot reference cavity", *Quantum Electronics and Laser Science Conference (QELS '00)*, San Francisco, CA, 2000. Optical Society of America.
8. L. Arissian, Mukherjee, R.J. Jones and J.-C. Diels, "Four photon coherent interaction applied to long term stabilization of a femtosecond clock", *Quantum Electronics and Laser Science Conference (QELS '01)*, Technical Digest p. 54, Long Beach, CA, May 19-24, 2000. Optical Society of America.

9. R.J. Jones, L. Arissian, and J.-C. Diels, "Optical frequency measurements with a reference cavity stabilized femtosecond laser for improved short term stability", *Conference on Lasers and Electro-optics (CLEO '02)*, Technical Digest p. 603, Long Beach, CA, May 19-24, 2002. Optical Society of America.
10. R. J. Jones, L. Chen, W.-Y. Cheng, S. Foreman, J. L. Hall, K. Holman, D. Jones, J. Jost, A. Marian, and Jun Ye, "Precision measurements and applications of femtosecond frequency combs," *Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP)*, American Physical Society, Williamsburg, VA, May 29-June 1, 2002. *Bulletin Am. Phys. Soc.* 47, No. 3, 96 (2002). (**Invited**)
11. Jun Ye, S. T. Cundiff, J. L. Hall, D. J. Jones, R. J. Jones, J. D. Jost, H. C. Kapteyn, L.-S. Ma, and R. Shelton, "Phase coherent synthesis of optical frequencies and waveforms," *International Quantum Electronics Conference (IQEC)*, Technical Digest p. 281, Moscow, Russia, June 22-28, 2002.
12. R. J. Jones, W.-Y. Cheng, L. Chen, K. W. Holman, J. L. Hall and J. Ye, "Absolute frequencies, linewidths, and hyperfine structures of iodine transitions near the dissociation limit," *Conference on Precision Electromagnetic Measurements (CPEM)*, Ottawa, Canada, June 16-21, 2002.
13. R. J. Jones, "Stabilization of Ultrashort Light Pulses: Precision Measurement and Applications of Femtosecond Frequency Combs", Atomic Physics Seminar, Kansas State University, Sept. 11, 2002 (**Invited**).
14. Jun Ye, S. T. Cundiff, S. Foreman, T. Fortier, D. Jones, and R. J. Jones, "Phase coherent synthesis and control of ultrashort pulses," *Conference on Lasers and Electro-optics (CLEO '03)*, Technical Digest, Baltimore, MA, 2003. Optical Society of America.
15. R. J. Jones E. Potma, X. S. Xie and J. Ye, "Passive optical amplifier for picosecond pulses," *Conference on Lasers and Electro-optics (CLEO '03)*, Baltimore, MA, May 2003. Optical Society of America.
16. R. J. Jones, K. Holman, J. Ye, E. Potma, X. S. Xie, "Ultrafast-laser stabilization with application to pulse amplification by use of passive optical cavities," *Ultrafast Optics IV*, Vienna, Austria, July 2003.
17. R. J. Jones, "Control of femtosecond comb dynamics- time and frequency domain applications," IEEE LEOS Topical Meeting: Photonic Time/Frequency Metrology and Control, Vancouver, British Columbia, July 2003 (**Invited**).

18. R. J. Jones, "Femtosecond Laser Stabilization: Time and Frequency Domain Applications," Innsbruck, Austria, July 2003 (**Invited**).
19. R. J. Jones, "Stabilization of Femtosecond Lasers for Precision Measurement and Coherent Storage of Optical Pulses in External Cavities," monthly meeting of the Rocky Mountain Optical Society of America (RMOSA), Boulder, CO, September 2003 (**Invited**).
20. R. J. Jones, "Controlling ultrashort pulses of light: precision measurement with femtosecond frequency combs," State University of New York, Stony Brook, Feb. 2004 (**Invited**).
21. R. J. Jones, I. Thomann, J. Ye, "Precise stabilization of femtosecond lasers to high-finesse optical cavities," *Conference on Lasers and Electro-optics (CLEO '04)*, San Francisco, CA, May 2004.
22. R. J. Jones and J. Ye, "Precision measurements with stabilized femtosecond lasers" *Modern Problems in Laser Physics 2004*, Novosibirsk, Russia, August 2004 (**Invited**).
23. R. J. Jones, K. Moll, M. Thorpe and J. Ye, "Coherent amplification of femtosecond pulses with passive enhancement cavities," *14th International Conference on Ultrafast Phenomena*, Niigata, Japan, July 2004.
- 23 R. J. Jones, J. Ye, M. Stowe, A. Marian, T. Ido, M. Boyd, A. Ludlow, T. Zelevinsky, and S. Blatt, "Precision spectroscopy in ultracold atoms," *International Conference on Nonlinear Optics 2005*, St. Petersburg, Russia, May 2005. (**Invited**)
- 24 R. J. Jones, K. Moll, M. Thorpe, and J. Ye, "HHG at 100 MHz repetition frequency: efficient production of a VUV frequency comb," *Conference on Lasers and Electro-optics (CLEO '05)*, Baltimore, MA, May 2005 (Post-deadline).
- 25 R. J. Jones, K. D. Moll, M.J. Thorpe, and J. Ye, "High-harmonic generation at 100 MHz repetition frequency using a femtosecond enhancement cavity" *Ultrafast Optics V*, Nara, Japan, Sept. 2005. (**Invited**)
- 26 R. J. Jones and J. Ye, "Control of coherent light: From precision spectroscopy to extreme nonlinear optics," *Australasian Conference on Optics, Lasers and Spectroscopy*, Rotorua, New Zealand, Dec 2005. (**Invited**)
- 27 R. J. Jones, K. D. Moll, M. J. Thorpe, and J. Ye, "Extreme nonlinear optics inside femtosecond enhancement cavities," *Conference on Lasers and Electro-optics (CLEO '06)*, Longbeach, CA, May 2006. (**Invited**)