

# Amy L. Oldenburg, Ph.D.

Assistant Professor  
Department of Physics and Astronomy  
Biomedical Research Imaging Center  
University of North Carolina  
Chapel Hill

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## Education

### Graduate

Aug 1995 - Sept 2001  
Ph.D., Physics, Sept 2001  
M.S., Physics, May 1997

### University of Illinois at Urbana-Champaign

Department of Physics  
Ph.D. Thesis: *Dynamics of Electronic Wavepackets in Atomic Rubidium*

### Undergraduate

Aug 1991 - June 1995  
B.S., Applied Physics, June 1995 (with honors)

### California Institute of Technology

Department of Applied Physics  
Pasadena, CA

### High School

Aug 1988 - June 1991

### Illinois Mathematics and Science Academy

Aurora, IL

## Employment

### Assistant Professor

July 2008-present  
Department of Physics and Astronomy  
Biomedical Research Imaging Center  
University of North Carolina at Chapel Hill

I have just begun a tenure-track faculty position at UNC in biophysics and affiliated with the Biomedical Research Imaging Center. I intend to develop novel biomedical imaging techniques based on optical coherence imaging, and study biomechanics.

### Senior Research Scientist

Jan 2007-July 2008  
Biophotonics Imaging Laboratory  
Beckman Institute for Advanced Science & Technology  
Electrical and Computer Engineering Department  
University of Illinois at Urbana-Champaign

At the biophotonics imaging laboratory of Prof. Stephen A. Boppart, my research involved developing new modalities for *in vivo* imaging of targeted magnetic and plasmon-resonant nanoparticle contrast agents, using optical coherence tomography.

### Post-Doctoral Research Associate

Sept 2001-Dec 2006  
Biophotonics Imaging Laboratory  
Beckman Institute for Advanced Science & Technology  
Electrical and Computer Engineering Department  
University of Illinois at Urbana-Champaign

My post-doctoral position evolved into the research scientist position. In addition to contrast agent research, I learned basic biological techniques, built optical tweezers, and developed software and hardware for several optical coherence tomography imaging systems.

### Graduate Research Assistant

1996-Sept 2001  
Optical Physics and Engineering Lab  
Department of Physics  
University of Illinois at Urbana-Champaign

Graduate research was conducted with Prof. J. Gary Eden, investigating nonlinear optical effects in alkali metals including four-wave mixing, excitation of molecular wavepackets with femtosecond lasers and modeling molecular potentials.

### Graduate Teaching Assistant

fall semester 1998, UIUC, ECE Dept.

Teaching assistant for ECE 355, optical electronics course, with Prof. Mark Kushner.

### Graduate Teaching Assistant

1995-1996, UIUC, Physics Dept.

Teaching assistant for Physics 101 discussion and laboratory sections (introductory physics course).

**Undergraduate Researcher**  
summers, 1993 and 1994  
Fermi National Laboratory, Batavia, IL

Wrote graphical user interface for beamline control in the Computing Department at FermiLab, as part of the summer undergraduate research program.

**Undergraduate Researcher**  
summers, 1991 and 1992  
Argonne National Laboratory, IL

Wrote and updated database software in the Computing Division at Argonne, as part of the summer undergraduate research program.

## Awards & Honors

Poster Award, Mills Breast Cancer Institute Pathfinders Symposium, Oct 2007  
Society for Molecular Imaging Young Investigator Travel Award to the Annual Meeting, Sept 2004  
Travel Award to the Advances in Optics for Biotechnology, Medicine and Surgery IV Conference, Aug 2003  
GAANN (Graduate Assistance in Areas of National Need) Fellowship, 1995-1996  
Graduation with Honors, B.S., California Institute of Technology, June 1995

## Professional Affiliations

*Current:*

American Physical Society  
Optical Society of America

*Former:*

Academy of Molecular Imaging  
Society for Molecular Imaging  
International Society for Optical Engineering (SPIE)  
American Association for the Advancement of Science

## Invited Publications

1. N. Iftimia, M. Amiji, and **A. L. Oldenburg**. "Nanotechnology approaches for contrast enhancement in optical imaging and disease targeted therapy." In *Advances in Optical Imaging for Clinical Medicine*, N. V. Iftimia, W. Brugge, and D. X. Hammer, eds., Artech (in press).
2. **A. L. Oldenburg**, B. E. Applegate, J. A. Izatt and S. A. Boppart. "Molecular OCT contrast enhancement and imaging." In *Optical Coherence Tomography: Technology and Applications*, W. Drexler and J. G. Fujimoto, eds., Springer, pp. 713-756 (2008).
3. **A. L. Oldenburg**, C. Xu and S. A. Boppart. "Spectroscopic optical coherence tomography and microscopy." *IEEE Journal of Selected Topics in Quantum Electronics*, special issue on Biophotonics, **13**(6), 1629-1640, (2007).
4. A. M. Zysk, F. T. Nguyen, **A. L. Oldenburg**, D. L. Marks and S. A. Boppart. "Optical coherence tomography: A review of clinical development from bench to bedside." Special section on optical diagnostic imaging from bench to bedside, *Journal of Biomedical Optics*, **12**(5), 051403 (2007).
5. S. A. Boppart, **A. L. Oldenburg**, C. Xu and D. L. Marks. "Optical molecular imaging probes and techniques for optical coherence tomography." *Journal of Biomedical Optics* **10**(4), 041208-1-14 (2005).
6. **A. L. Oldenburg** and S. A. Boppart. "Optical coherence tomography." In *2005 McGraw-Hill Encyclopedia of Science & Technology*.
7. **A. L. Oldenburg** and J. G. Eden. "Generation of coherent ultraviolet and vacuum ultraviolet radiation by nonlinear processes in intense optical fields." In *Ultraviolet Spectroscopy*, P. Misra and M. A. Dubinskii, eds. (Marcel Dekker, New York). pp. 371-396 (2001).

## Contributed Publications

1. **A. L. Oldenburg**, V. Crecea, S. A. Rinne and S. A. Boppart. "Phase-resolved magnetomotive OCT for imaging nanomolar concentrations of magnetic nanoparticles in tissues." *Optics Express* **16**(15) 11525-11539 (2008).
2. X. Liang, **A. L. Oldenburg**, V. Crecea, E. J. Chaney and S. A. Boppart. "Optical micro-scale mapping of dynamic biomechanical tissue properties." *Optics Express* **16**(15) 11052-11065 (2008).
3. **A. L. Oldenburg** and S. A. Boppart. "Optically pinpointing magnetic nanoparticles within biological tissue." *Optics & Photonics News* **17**(12), 24 (2006).
4. W. Tan, **A. L. Oldenburg**, J. J. Normal, T. A. Desai and S. A. Boppart. "Optical coherence tomography of cell dynamics in three-dimensional tissue models." *Optics Express* **14**(16), 7159-7171 (2006).
5. **A. L. Oldenburg**, M. N. Hansen, D. A. Zweifel, A. Wei and S. A. Boppart. "Plasmon-resonant gold nanorods as low backscattering albedo contrast agents for optical coherence tomography." *Optics Express* **14**(15), 6724-6738 (2006).
6. **A. L. Oldenburg**, F. Jean-Jacques Toublan, K. S. Suslick, A. Wei and S. A. Boppart. "Magnetomotive contrast for *in vivo* optical coherence tomography." *Optics Express* **13**(17), 6597-6614 (2005).
7. W. Luo, F. T. Nguyen, A. M. Zysk, T. S. Ralston, J. Brockenbrough, D. L. Marks, **A. L. Oldenburg** and S. A. Boppart. "Optical biopsy of lymph node morphology using optical coherence tomography." *Technology in Cancer Research & Treatment* **4**(5), 539-547 (2005).
8. **A. L. Oldenburg**, J. R. Gunther and S. A. Boppart. "Imaging magnetically labeled cells with magnetomotive optical coherence tomography." *Optics Letters* **30**(7), 747-749 (2005).
9. A. Senin, H. C. Tran, J. Gao, Z. H. Lu, C. J. Zhu, **A. L. Oldenburg**, J. R. Allen and J. G. Eden. "Molecular dissociation observed with an atomic wavepacket and parametric four-wave mixing." *Chemical Physics Letters* **381**, 53-59 (2003).
10. **A. L. Oldenburg**, J. J. Reynolds, D. L. Marks and S. A. Boppart. "Fast Fourier-domain delay line for *in vivo* optical coherence tomography using a polygonal scanner." *Applied Optics-OT* **42**(22), 4606-4611 (2003).
11. T.-M. Lee, **A. L. Oldenburg**, S. Sitafalwalla, D. L. Marks, W. Luo, F. Jean-Jacques Toublan, K. S. Suslick and S. A. Boppart. "Engineered microsphere contrast agents for optical coherence tomography." *Optics Letters* **28**(17), 1546-1548 (2003)
12. D. L. Marks, **A. L. Oldenburg**, J. J. Reynolds and S. A. Boppart. "Autofocus algorithm for dispersion correction in optical coherence tomography." *Applied Optics-OT* **42**(16), 3038-3046 (2003).
13. D. L. Marks, **A. L. Oldenburg**, J. J. Reynolds and S. A. Boppart. "Digital algorithm for dispersion correction in optical coherence tomography for homogeneous and stratified media." *Applied Optics-IP* **42**(2), 204-217 (2003).
14. D. L. Marks, **A. L. Oldenburg**, J. J. Reynolds and S. A. Boppart. "Study of an ultrahigh-numerical-aperture fiber continuum generation source for optical coherence tomography." *Optics Letters* **27**(22), 2010-2012 (2002).
15. **A. L. Oldenburg**, P. C. John and J. G. Eden. "Vibrational wave packets in the  $B_1\Pi_u$  and  $D_1\Sigma_u^+$  states of  $CS_2$ : Determination of improved  $CS_2^+(X)$  and  $CS_2(B)$  spectroscopic constants." *Journal of Chemical Physics* **113**(24), 11009-18 (2000).

## Invited Presentations

1. **A. L. Oldenburg**, "Optical coherence tomography for biophysics and biomedicine", Condensed Matter Seminar, Department of Physics, North Carolina State University, to be presented, Feb. 24, 2009.
2. **A. L. Oldenburg** and S. A. Boppart, "Magnetomotive optical coherence tomography for elastography of small biosamples." 75th Annual Meeting of the Southeast Section of the American Physical Society, North Carolina State University, Raleigh, NC, Oct. 30, 2008.

3. **A. L. Oldenburg** and S. A. Boppart, "Magnetomotive nanoparticle contrast for optical coherence tomography and multi-modality imaging." Center for Nanoscale Science and Technology Nanotechnology Workshop, University of Illinois, May 3, 2007.
4. **A. L. Oldenburg**, C. Xu and S. A. Boppart. "Advanced spectroscopic optical coherence imaging." 19<sup>th</sup> Annual Meeting of the IEEE Lasers & Electro-Optics Society, Montreal, Oct. 31, 2006.
5. S. A. Boppart, **A. L. Oldenburg** and D. L. Marks. "The Biophotonics Imaging Laboratory: Novel technology for optical diagnostics in medicine and biology." ECE Reading Day Retreat on Imaging, UIUC, May 4, 2006.
6. S. A. Boppart, D. L. Marks, **A. L. Oldenburg**, C. Vinegoni, J. S. Bredfeldt, C. Xu, J. R. Gunther, F. Jean-Jacques Toublan and K. S. Suslick. "Contrast enhancement methods for optical coherence tomography." IEEE/LEOS Summer Topical Meeting on Biophotonics, San Diego, CA, June 28-30, 2004.

## Invited Internal Presentations

1. **A. L. Oldenburg**. "Magnetic and plasmon-resonant nanobiological imaging probes in optical coherence tomography." Biophysics seminar, to be presented Feb. 11, 2009.
2. **A. L. Oldenburg**. "Optical coherence tomography for biophysical studies." Virtual Lung Project seminar, University of North Carolina, Chapel Hill, Dec. 12, 2008.
3. **A. L. Oldenburg**. "Looking inward: Physics of the human body." Symposium on "Where we came from, where we are going." Department of Physics, University of North Carolina, Chapel Hill, Oct. 10, 2008.
4. **A. L. Oldenburg**. "Optical coherence tomography for molecular and mechanical imaging of disease." Newcomers seminar, Department of Physics, University of North Carolina, Chapel Hill, Oct. 7, 2008.
5. **A. L. Oldenburg**. "Mesoscale biomechanics *in vivo* using optical coherence tomography." Biophysics Graduate Student Seminar, University of North Carolina, Chapel Hill, Sept. 17, 2008.
6. **A. L. Oldenburg**, J. R. Gunther, F. Jean-Jacques Toublan, D. L. Marks, K. S. Suslick and S. A. Boppart. "Magnetic contrast agents for optical coherence tomography." Nanohour, Molecular and Electronics Nanostructures Seminar Series, Beckman Institute, Urbana, IL, March 3, 2004.
7. **A. L. Oldenburg**, K. M. Kasi, S.-J. Moon, T. Kim, C. Ho, K. Kim, V. I. Gelfand, M. Strano, S. A. Boppart and G. L. Timp. "Optical manipulation of silicon microparticles and carbon nanotubes." Beckman Institute Nanohour Seminar Series, Urbana, IL, Dec. 4, 2002.

## Contributed Presentations

1. **A. L. Oldenburg**, V. Crecea and S. A. Boppart. "Mechanical resonance detection for elastography of small biosamples using magnetomotive optical coherence tomography." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan., 2009.
2. V. Crecea, **A. L. Oldenburg**, X. Liang, T. S. Ralston and S. A. Boppart. "Measuring biomechanical properties of tissue phantoms with magnetomotive optical coherence tomography." Conference on the Scientific and Clinical Applications of Magnetic Carriers, Vancouver, Canada, May 21-24, 2008.
3. F. T. Nguyen, E. M. Dibbern, E. J. Chaney, **A. L. Oldenburg**, K. S. Suslick and S. A. Boppart. "Magnetic protein microspheres as dynamic contrast agents for magnetomotive optical coherence tomography." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan., 2008.

4. **A. L. Oldenburg**, M. N. Hansen, A. Wei and S. A. Boppart. "Plasmon-resonant gold nanorods provide spectroscopic OCT contrast in excised human breast tumors." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan., 2008.
5. X. Liang, **A. L. Oldenburg**, V. Crecea, S. Kalyanam, M. F. Insana and S. A. Boppart. "Modeling and measurements of tissue elastic moduli using optical coherence elastography." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan., 2008.
6. **A. L. Oldenburg**, V. Crecea, S. A. Rinne, R. Rezaeipoor, E. J. Chaney and S. A. Boppart. "Spectral-domain magnetomotive OCT imaging of magnetic nanoparticle biodistribution." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan., 2008.
7. **A. L. Oldenburg**, S. A. Boppart and A. Wei. "Plasmon-resonant nanorods as multifunctional contrast agents for optical coherence tomography." National Institute of Biomedical Imaging and Bioengineering Grantee Meeting, Bethesda, MD, Nov. 2, 2007.
8. **A. L. Oldenburg**, M. N. Hansen, A. Wei, K. S. Suslick and S. A. Boppart. "Plasmon-resonant and magnetic nanoparticles as optical probes for molecular contrast in optical coherence imaging." Poster presentation, Mills Breast Cancer Institute Pathfinders Symposium, Urbana, IL, Oct 5., 2007.
9. F. T. Nguyen, E. M. Dibbern, E. J. Chaney, **A. L. Oldenburg**, R. Rezaeipoor, K. S. Suslick and S. A. Boppart. "Magnetic protein microspheres as dynamic contrast agents for magnetomotive optical coherence tomography." Poster presentation, National MD-PhD Student Conference, Keystone, CO, July 27-29, 2007.
10. F. T. Nguyen, E. M. Dibbern, E. J. Chaney, **A. L. Oldenburg**, R. Rezaeipoor, K. S. Suslick and S. A. Boppart. "Magnetic protein microspheres as dynamic contrast agents for magnetomotive optical coherence tomography." Poster presentation, MGH-KI-NPG Days of Molecular Medicine Emerging Technologies and Cancer Biology, Cambridge, MA May 22-24, 2007.
11. **A. L. Oldenburg**, M. N. Hansen, A. Wei, K. S. Suslick and S. A. Boppart. "Plasmon-resonant and magnetic nanoparticles as optical probes for molecular contrast in optical coherence imaging." Poster presentation, Optical Society of America Nanophotonics Workshop, University of Illinois at Urbana-Champaign, April 5, 2007.
12. **A. L. Oldenburg**, M. N. Hansen, A. Wei and S. A. Boppart. "Gold nanorods provide tissue contrast in optical coherence tomography via backscattering albedo." Oral and poster presentation, Nanotechnology and the Life Sciences Symposium, Washington University, St. Louis, MO, March 30, 2007.
13. V. Crecea, **A. L. Oldenburg**, T. S. Ralston and S. A. Boppart. "Magnetomotive nanoparticles for contrast enhancement in optical coherence tomography." Poster presentation, Nanotechnology and the Life Sciences Symposium, Washington University, St. Louis, MO, March 30, 2007.
14. Q. K. Ong, C. Kuebel, **A. L. Oldenburg** and A. Wei. "Preparation of hollow cobalt ferrite nanoparticles." American Chemical Society National Meeting, Chicago, IL, March 26, 2007.
15. **A. L. Oldenburg**, M. N. Hansen, A. Wei and S. A. Boppart. "Backscattering albedo contrast in OCT using plasmon-resonant gold nanorods." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan. 24, 2007.
16. V. Crecea, **A. L. Oldenburg**, T. S. Ralston and S. A. Boppart. "Phase-resolved spectral-domain magnetomotive optical coherence tomography." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan. 24, 2007.
17. **A. L. Oldenburg**, M. N. Hansen, A. Wei, K. S. Suslick and S. A. Boppart. "Plasmon-resonant and magnetic nanoparticles as optical probes for molecular contrast in optical coherence imaging." Poster presentation, Beckman Institute Research Initiative Workshop, Urbana, IL, Dec. 12, 2006.

18. **A. L. Oldenburg**, A. Wei and S. A. Boppart. "Nanoparticle contrast agents for molecular optical coherence tomography imaging." Biomedical Engineering Society Annual Meeting, Chicago, Oct. 13, 2006.
19. A. Wei, J. X. Cheng, **A. L. Oldenburg** and S. A. Boppart. "Plasmon-resonant nanorods as multifunctional agents." American Chemical Society National Meeting, San Francisco, CA, Sept. 11, 2006.
20. F. T. Nguyen, E. J. Chaney, W. Luo, A. M. Zysk, T. S. Ralston, D. L. Marks, **A. L. Oldenburg**, J. Brockenbrough and S. A. Boppart. "Three dimensional visualization of lymph nodes using optical coherence tomography." Poster presentation, National MD/PhD Student Conference, Keystone, CO, July 7-9, 2006.
21. **A. L. Oldenburg**, M. N. Hansen, A. Wei, K. S. Suslick and S. A. Boppart. "Plasmon-resonant and magnetic nanoparticles as optical probes for molecular contrast in optical coherence imaging." Poster presentation, Nanotechnology Workshop, Center for Nanoscale Science and Technology, Urbana, IL, May 4-5, 2006.
22. R. Rezaeiipoor, **A. L. Oldenburg**, V. Crecea, F. T. Nguyen, D. L. Marks and S. A. Boppart. "Optical coherence tomography contrast agents and molecular imaging methods." Poster presentation, Nanotechnology Workshop, Center for Nanoscale Science and Technology, Urbana, IL, May 4-5, 2006.
23. F. T. Nguyen, E. J. Chaney, A. M. Zysk, T. S. Ralston, D. L. Marks, **A. L. Oldenburg**, J. Brockenbrough and S. A. Boppart. "Three-dimensional visualization of lymph nodes using optical coherence tomography." Poster presentation, American Physician Scientists Association 2nd Annual Meeting, Chicago, IL, April 28-30, 2006
24. F. T. Nguyen, E. J. Chaney, W. Luo, A. M. Zysk, T. S. Ralston, D. L. Marks, **A. L. Oldenburg**, J. Brockenbrough and S. A. Boppart. "Three-dimensional visualization of lymph node morphology using OCT." Poster presentation, Optical Society of America Topical Meeting on Biomedical Optics, Fort Lauderdale, FL, March 19-23, 2006.
25. **A. L. Oldenburg**, W. Luo and S. A. Boppart. "High-resolution *in vivo* nanoparticle imaging using magnetomotive optical coherence tomography." SPIE International Society of Optical Engineering, Biomedical Optics Conference, San Jose, CA, Jan. 22, 2006.
26. **A. L. Oldenburg**, S. A. Boppart and A. Wei. "Plasmon-resonant nanorods as multifunctional contrast agents for optical coherence tomography." National Institute of Biomedical Imaging and Bioengineering Grantee Meeting, Washington, DC, Aug. 8-9, 2005.
27. **A. L. Oldenburg**, C. Xu, F. Jean-Jacques Toublan, G. R. Najarro, W. Luo, J. R. Gunther, A. Wei, K. L. Watkin, K. S. Suslick and S. A. Boppart. "Optical coherence tomography contrast agents for *in vivo* molecular imaging." Poster presentation, Center for Nanoscale Science and Technology, Urbana, IL, May 5-6, 2005.
28. **A. L. Oldenburg**, D. A. Zweifel, C. Xu, A. Wei and S. A. Boppart. "Characterization of plasmon-resonant gold nanorods as near-infrared optical contrast agents investigated using a double-integrating sphere system." SPIE International Society of Optical Engineering Biomedical Optics, San Jose, CA, Jan. 25, 2005.
29. **A. L. Oldenburg**, C. Xu, F. Jean-Jacques Toublan, G. R. Najarro, W. Luo, J. R. Gunther, A. Wei, K. L. Watkin, K. S. Suslick and S. A. Boppart. "Optical coherence tomography contrast agents for *in vivo* molecular imaging." Poster presentation, Frontiers of Biomedical Imaging Symposium: The MRI Nobel Celebration and Future Directions, Urbana, IL, Nov. 9-10, 2004.
30. C. Xu, **A. L. Oldenburg**, D. L. Marks, T. S. Ralston and S. A. Boppart. "Micrometer-resolution 3-D imaging of near-infrared molecular probes using spectroscopic optical coherence tomography." Poster presentation, Frontiers of Biomedical Imaging Symposium, Urbana, IL, November 8-10, 2004.
31. S. A. Boppart, **A. L. Oldenburg**, D. L. Marks, C. Vinegoni, J. S. Bredfeldt, C. Xu, J. R. Gunther, F. Jean-Jacques Toublan, A. Wei, K. L. Watkin and K. S. Suslick. "Molecular contrast enhancement for optical coherence tomography." Poster presentation, NIH Optical Imaging Workshop, Bethesda, MD, Sept. 20-22, 2004.

32. **A. L. Oldenburg**, C. Xu, F. Jean-Jacques Toublan, G. R. Najarro, W. Luo, J. R. Gunther, A. Wei, K. L. Watkin, K. S. Suslick and S. A. Boppart. "Optical coherence tomography contrast agents for *in vivo* molecular imaging." Poster presentation, Society for Molecular Imaging Annual Meeting, St. Louis, MO, Sept. 9-12, 2004.
33. C. Xu, **A. L. Oldenburg**, D. L. Marks and S. A. Boppart. "High resolution 3-D mapping of near-infrared absorbing molecular probes using spectroscopic optical coherence tomography." Poster presentation, Society for Molecular Imaging Annual Meeting, St. Louis, MO, Sept. 9-12, 2004.
34. C. J. Zhu, Z. H. Lu, Andrei A. Senin, J. R. Allen, **A. L. Oldenburg**, J. Gan and J. G. Eden. "Competition between quantum beatings at  $608\text{ cm}^{-1}$  and  $70\text{ cm}^{-1}$  in Rb observed by parametric four-wave mixing." International Quantum Electronics Conference (IQEC), May 16-21, 2004.
35. **A. L. Oldenburg**, C. Xu, W. Luo, J. R. Gunther, S. A. Boppart, F. Jean-Jacques Toublan, K. S. Suslick, G. R. Najarro, K. L. Watkin and A. Wei. "*In vivo* detection of exogenous contrast agents using optical coherence tomography." Optical Society of America BIOMED, Miami, FL, April 17, 2004.
36. **A. L. Oldenburg**, C. Xu, F. Jean-Jacques Toublan, T.-M. Lee, J. R. Gunther, D. L. Marks, A. Wei, K. S. Suslick and S. A. Boppart. "Developing targeted contrast agents for *in vivo* optical coherence tomography." Annual Conference of the Academy of Molecular Imaging, Orlando, FL, March 28, 2004.
37. S. A. Boppart, **A. L. Oldenburg**, W. Tan, D. L. Marks, T. M. Lee, C. Vinegoni, J. S. Bredfeldt, W. Luo, J. R. Gunther, K. S. Suslick and K. W. Singletary. "Optical coherence tomography for basic science investigation and clinical diagnosis of cancer." Poster presentation, Annual Meeting of the American Association for Cancer Research, Orlando, FL, March 28-31, 2004.
38. J. M. Martin, W. Luo, **A. L. Oldenburg**, D. L. Marks and S. A. Boppart. "Assessment of developing structural and functional biology using optical coherence tomography." Poster presentation, Chicago Universities Bioengineering Industry Consortium (CUBIC). Chicago, IL, Jan. 29-30, 2004.
39. C. Xu, J. Ye, T. M. Lee, **A. L. Oldenburg**, D. L. Marks and S. A. Boppart. "Enhancing spectroscopic optical coherence tomography using contrast agents." Poster presentation, Chicago Universities Bioengineering Industry Consortium (CUBIC). Chicago, IL, Jan. 29-30, 2004.
40. **A. L. Oldenburg**, J. R. Gunther, F. Jean-Jacques Toublan, D. L. Marks, K. S. Suslick and S. A. Boppart. "Magnetic contrast agents for optical coherence tomography." SPIE International Society of Optical Engineering Biomedical Optics, San Jose, CA, Jan. 26, 2004.
41. **A. L. Oldenburg**, D. L. Marks, F. Jean-Jacques Toublan, J. S. Bredfeldt, J. Ye, S. A. Hambir, J. R. Gunther, T. M. Lee, C. Xu, K. S. Suslick and S. A. Boppart. "Optical coherence tomography of molecular contrast agents and molecular species." Poster presentation, Advances in Optics for Biotechnology, Medicine and Surgery IV, Banff, Alberta, Canada, Aug. 3-7, 2003.
42. **A. L. Oldenburg**, J. R. Gunther, F. Jean-Jacques Toublan, D. L. Marks, K. S. Suslick and S. A. Boppart. "Selective OCT imaging of cells using magnetically-modulated optical contrast agents." Conference for Lasers and Electro-Optics, Baltimore (CLEO), Baltimore, MD, June 1-5, 2003.
43. **A. L. Oldenburg**, F. Jean-Jacques Toublan, T.-M. Lee, J. G. Gunther, K. S. Suslick and S. A. Boppart. "Dynamic non-fluorescent nanoparticle optical contrast agents." Poster presentation, 2<sup>nd</sup> Symposium on Biological Imaging: New Dimensions in *In Vivo* Imaging, Madison, WI, May 30, 2003.
44. **A. L. Oldenburg**, F. Jean-Jacques Toublan, T.-M. Lee, J. G. Gunther, K. S. Suslick and S. A. Boppart. "Dynamic non-fluorescent nanoparticle optical contrast agents." Poster presentation, Nanotechnology Industry Workshop, Urbana, IL, May 9, 2003.
45. F. Jean-Jacques Toublan, K. S. Suslick, S. A. Boppart, T.-M. Lee and **A. L. Oldenburg**. "Modification of Protein Microspheres for Biomedical Application." 225th ACS National Meeting, New Orleans, LA, March 23-27, 2003.

46. **A. L. Oldenburg**, S.-J. Moon, K.M. Kasi, T. Kim, C. Ho, R. Timp, H. Choi, V. I. Gelfand, J. Roland, K. Kim, S. A. Boppart and G. L. Timp. "Optical manipulation of silicon microparticles in biological environments." SPIE International Society of Optical Engineering Biomedical Optics, San Jose, CA, Jan. 25-31, 2003.
47. T.-M. Lee, F. Jean-Jacques Toublan, K. S. Suslick, **A. L. Oldenburg**, S. Sitafalwalla and S.A. Boppart. "Optical characterization of contrast agents for optical coherence tomography." SPIE International Society of Optical Engineering Biomedical Optics, San Jose, CA, Jan. 25-31, 2003.
48. D. L. Marks, **A. L. Oldenburg**, J. J. Reynolds and S. A. Boppart. "Autofocus algorithm for digital correction of dispersion and spectral nonuniformity in optical coherence tomography." Optical Society of America Annual Meeting, Orlando, FL, Sept. 29 – Oct. 3, 2002.
49. D. L. Marks, **A. L. Oldenburg**, J. J. Reynolds, and S. A. Boppart. "Digital dispersion compensation in optical coherence tomography." Poster presentation, IEEE International Symposium on Biomedical Imaging, Washington DC, July 7-10, 2002.
50. **A. L. Oldenburg**, J. C. Selby, T.E. Eurell and S. A. Boppart. "Three-dimensional laser micromachining and imaging of biocompatible polymers." Poster presentation, Optical Society of America Biomedical Topical Meeting, Miami, FL, April 7-10, 2002.
51. A. A. Senin, **A. L. Oldenburg** and J. G. Eden. "Time-frequency analysis of the ultraviolet signal resulting from probe pulse scattering by atomic wavepackets." 11<sup>th</sup> International Conference of Lasers in Science, Technology, and Medicine, Sochi, Russia, 2000.
52. **A. L. Oldenburg** and J. G. Eden. "Wavepacket dynamics and time-domain spectroscopy in atomic rubidium." Quantum Electronics and Laser Science Conference (QELS), Baltimore, MD, May 23-28, 1999.

## Public Press Articles

1. "New physics faculty member benefits from center resources," Written by Patty Courtright, University Gazette, Oct. 15, 2008.
2. "Nanoparticles Enhance OCT Imaging," Written by Phillip Espinasse, OE Magazine, pg. 10, November, 2003.