

Publications

1 Book Chapters

1. Ladan Arissian and Jean-Claude Diels. Mode-locked lasers. In *Encyclopedia of Modern Optics*. Elsevier, 2017.
2. Xuan Luo, Ning Hsu, Jens Biegert, and Ladan Arissian. Pulse compression in parametric amplification. In Cassandra Strickland, editor, *Wiley Encyclopedia of Electrical and Electronics Engineering*, in press. Wiley, 2017.
3. Jean-Claude Diels, and Ladan Arissian, Ultrashort Optical sources and applications, In M. Bass, editor, *Optics Handbook Vol. I*, McGraw-Hill, New-York, 2010.
4. Jean-Claude Diels, Jason Jones and Ladan Arissian Applications to sensors of extreme sensitivity. in Jun Ye and Stephen Condiff, editors, *Femtosecond Optical Frequency Comb: Principle, Operation and Applications*. chapter 3, Springer, New York, NY, 2004.
5. Jens Biegert and Jean-Claude Diels”, Encyclopedia of Electrical and Electronics Engineering (#17). John G. Webster, editor, *Pulse Compression: Type II Second Harmonic Pulse Compression* pages 446-454. IEEE, 1998.
6. Xin Miao Zhao and Jean-Claude Diels. Ultrashort sources. In M. Bass, editor, *Optics Handbook Vol. I*, chapter 14, pages 14.1–14.29. McGraw-Hill, New-York, 1994.
7. Jean-Claude Diels. Femtosecond dye lasers. In Duarte & Hillman editors, *Dye Lasers*, chapter 3, pages 41–132. Academic Press, Boston 1990.
8. Xin Miao Zhao, Scott Diddams, and Jean-Claude Diels. Applications of ultrashort pulses. In F. J. Duarte, editor, *Tunable Lasers Applications*. chapter 4, pages 113–151. Marcel Dekker, New York, N. Y., 1995.

2 Books

- Ultrashort Laser Pulse Phenomena: Fundamentals, techniques and applications on a femtosecond time scale (with W. Rudolph), Elsevier/Academic Press, Series “Optics and Photonics”, Boston (1996 – 2006); third edition in preparation.
- Jean-Claude Diels and Ladan Arissian, “The Power and Precision of Light”, John Wiley Publisher 200 pages, published October 2011. (A book for layman, prepared at the occasion of the 50th anniversary of the laser)
- In preparation: A multiple author book on “Filament Science”, co-edited by Jean-Claude Diels, Martin Richardson and Ladan Arissian.

3 Selected Publications

1. James Hendrie, Matthias Lenzner, Hanieh Akhemiardakani, Jean-Claude Diels, and Ladan Arissian. Impact of resonant dispersion on the sensitivity of intracavity phase interferometry and laser gyros. *Optics Express*, 24:30402–304010, 2016.
2. Koji Masuda, James Hendrie, Jean-Claude Diels, and Ladan Arissian. Envelope, group and phase velocities in a nested frequency comb. *Journal of Physics B*, 49:085402, 2016.
3. L. Arissian and J.-C. Diels, “Intracavity Phase Interferometry: frequency combs sensor inside a laser cavity”, *Laser Photonics Review* **8**: 799–826 (2014).
4. Olivier Chalus, Alexey Sukhinin, Alejandro Aceves, and Jean-Claude Diels. Propagation of non-diffracting intense ultraviolet beams. *Optics Comm.*, **281**:3356–3360 (2008).
5. Ladan Arissian and Jean-Claude Diels. Carrier to envelope and dispersion control in a cavity with prism pairs. *Physical Review A*, **75**:013814–013824, 2007.
6. 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.*, 86:3288–3291, 2001.
7. Scott Diddams, Briggs Atherton, and Jean-Claude Diels. Differential intracavity phase spectroscopy of a three-level system in samarium. *Phys. Rev. A.*, **58**:2252–2263, 1998.
8. Xin Miao Zhao, Jean-Claude Diels, Cai Yi Wang, and Juan Elizondo. Femtosecond ultraviolet laser pulse induced electrical discharges in gases. *IEEE J. Quantum Electronics*, **QE-31**, No. 3:599–612, March 1995.
9. N. Mukherjee, A. Mukherjee, and J.-C. Diels. Four-photon coherent resonant propagation and transient wave mixing: Application to the mercury atom. *Phys. Rev. A*, **A38**:1990–2004, 1988.
10. J.-C. Diels and S. Besnainou. Multiphoton coherent excitation of molecules. *J. Chem. Phys.*, **85**:6347–6355, 1986.
11. W. Rudolph and J.-C. Diels. Femtosecond time resolved fluorescence. In A. E. Siegman, editor, *Picosecond Phenomena V*, pages 71–74, Berlin, 1986. Springer-Verlag.
12. J.-C. Diels, J. J. Fontaine, I. C. McMichael, and F. Simoni. Control and measurement of ultrashort pulse shapes (in amplitude and phase) with femtosecond accuracy. *Applied Optics*, **24**:1270–1282, 1985.
13. W. Dietel, J. J. Fontaine, and J.-C. Diels. Intracavity pulse compression with glass: a new method of generating pulses shorter than 60 femtoseconds. *Optics Lett.*, **8**:4–6, 1983.
14. J.-C. Diels, J. Menders, and H. Sallaba. Generation of coherent pulses of 60 optical cycles through synchronization of the relaxation oscillations of a mode-locked dye laser. In R. M. Hochstrasser, W. Kaiser, and C. V. Shank, editors, *Picosecond Phenomena II*, page 41, Berlin, 1980. Springer-Verlag.
15. J.-C. Diels and A. T. Georges. Coherent two-photon resonant third and fifth harmonic VUV generation in metal vapors. *Phys. Rev. A*, **19**:1589–1591, 1979.
16. J.-C. Diels. Efficient selective optical excitation for isotope separation using short laser pulses. *Phys. Rev. A*, **13**:1520–1526, 1976.
17. J.-C. Diels and E. L. Hahn. Pulse propagation stability in absorbing and amplifying media. *IEEE J. of Quantum Electronics*, **QE-12**:411–416, 1976.
18. J.-C. Diels and E. L. Hahn. Carrier-frequency distance dependence of a pulse propagating in a two-level system. *Phys. Rev. A*, **8**:1084–1110, 1973.

4 Refereed Journal Publications (since 2007)

1. A. Sukhinin, A. B. Aceves, J.-C. Diels, and L. Arissian. Collapse events of two-color optical beams. *Phys. Rev. A.*, 95:031801(R), 2017.
2. Chengyong Feng, Xiaozhen Xu, and Jean-Claude Diels. High-energy sub-phonon lifetime pulse compression based on stimulated Brillouin scattering in liquids. *Optics Express.*, 25:12421–12434, 2017.
3. Chengyong Feng, Xiaozhen Xu, and Jean-Claude Diels. Multi-joule, sub-200ps laser pulse generation via SBS sub-phonon lifetime pulse compression. In *CLEO: 2017*, page STu4O.7. Optical Society of America, 2017.
4. Ning Hsu and J.-C. Diels. Pulse characterization by cascading nonlinearity inside a spectrometer (CANIS). *Optics Lett.*, submitted, 2018.
5. Elise Schubert, Ali Rastegari, Chengyong Feng, Denis Mongin, Brian Kamer, Jerome Kasparian, Jean-Pierre Wolf, Ladan Arissian, and Jean-Claude Diels. Hv discharge acceleration by sequences of uv laser filaments with visible and near-infrared pulses. *New Journal of Physics*, 19(12):123040, 2017.
6. M. Lenzner and J.-C. Diels. A Sagnac Fourier spectrometer. *Optics Express*, 25:A447–A453, 2017.
7. Ladan Arissian, Brian Kamer, Ali Rastegari, David Villeneuve, and Jean-Claude Diels. Transient gain from N_2^+ in light filaments. *Physical Review A*, submitted, 2018.
8. James Hendrie, Matthias Lenzner, Hanieh Akhemiardakani, Jean-Claude Diels, and Ladan Arissian. Impact of resonant dispersion on the sensitivity of intracavity phase interferometry and laser gyros. *Optics Express*, 24:30402–304010, 2016.
9. Chengyong Feng, Jean-Claude Diels, and Xiaozhen Xu. Spatio-temporal characterization of pulses obtained from a high-energy sub-nanosecond laser system. *Applied Optics*, 55:1603–16012, 2016.
10. Chengyong Feng, Xiaozhen Xu, and Jean-Claude Diels. High-energy sub-phonon lifetime pulse compression based on stimulated Brillouin scattering in liquids. *Submitted to J. Phys. B: atomic and molecular optics.*, 2016.
11. Koji Masuda, James Hendrie, Jean-Claude Diels, and Ladan Arissian. Envelope, group and phase velocities in a nested frequency comb. *Journal of Physics B*, 49:085402, 2016.
12. Shermineh Rostami, Michael Chini, Khan Lim, John P. Palastro, Magali Durand, Jean-Claude Diels, Ladan Arissian, Matthieu Baudelet, and Martin Richardson. Dramatic enhancement of supercontinuum generation in elliptically-polarized laser filaments. *Scientific Reports*, 6:20363–20369, 2016.
13. M. Lenzner and J.-C. Diels. Concerning the spatial heterodyne spectrometer. *Optics Express*, 24:1829–1839, 2016.
14. Koji Masuda, Christoph Affolderbach, Gaetano Mileti, Jean-Claude Diels and Ladan Arissian “Self-induced transparency and coherent population trapping of 87Rb vapor in a mode-locked laser”, *Optics Letters* 40:2146–2149 (2015)
15. Chengyong Feng, Jean-Claude Diels, Xiaozhen Xu and Ladan Arissian, “Ring-shaped backward stimulated Raman scattering driven by stimulated Brillouin scattering”, *Optics Express* 23:17035–17045 (2015)
16. A. Sukhinin, A. B. Aceves, J.-C. Diels, and L. Arissian. On the co-existence of ir and and uv optical filaments. *Journal of Physics B: At. Mol. Opt. Phys.*, 48:094021 (2015).
17. Shermineh Rostami, J.-C. Diels, and L. Arissian. Polarization evolution of ultrashort pulses in air. *Optics Express*, 23: 3299-3307 (2015)
18. Andreas Velten, Andreas Schmitt-Sody, Shermineh Rostami, Amin Rasoulof, Chengyong Feng, Jean-Claude Diels, and Ladan Arissian. Movies of plasmas and light filaments. *Journal of Physics B, special issue on filamentation*, 48:094020 (2015).

19. R. Gowda, N. Nguyen, J.-C. Diels, R. Norwood, N. Peyghambarian, and K. Kieu. All-fiber bidirectional optical parametric oscillator for precision sensing. *Optics Letters*, 40:2033–2036, 2015.
20. K. Masuda, E.I. Vaughan, L. Arissian, J.P. Hendrie, J. Cole, and J.-C. Diels and A.A. Hecht. Novel techniques for high precision refractive index measurements, and application to assessing neutron damage and dose in crystals. *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 784:198–201, 2015.
21. K. Masuda, E.I. Vaughan, L. Arissian, J.P. Hendrie, J. Cole, J.-C. Diels, A.A. Hecht "Novel techniques for high precision refractive index measurements, and application to assessing neutron damage and dose in crystals", *Nuclear Instruments and Methods A*, <http://dx.doi.org/10.1016/j.nima.2014.11.031> (2014).
22. J.-C. Diels and L. Arissian, "Intracavity Phase Interferometry: frequency combs sensor inside a laser cavity", *Laser Photonics Review* **8**: 799–826 (2014).
23. L. Arissian and J.-C. Diels, "Ultrafast electron plasma index; an ionization perspective". *Journal of Lasers, Optics & Photonics*, 1:107–111, 2014.
24. Shermineh Rostami, J.-C. Diels, and L. Arissian. Polarization evolution of ultrashort pulses in air. *Optics Express*, **23**: 3299–3307 (2015)
25. Andreas Velten, Andreas Schmitt-Sody, Shermineh Rostami, Amin Rasoulof, Chengyong Feng, Jean-Claude Diels, and Ladan Arissian. Movies of plasmas and light filaments. *Journal of Physics B, special issue on filamentation*, submitted, 2014.
26. Xiaozhen Xu, Chengyong Feng, and Jean-Claude Diels. Optimizing sub-ns pulse compression for high energy application. *Optics Express*, 22:13904–13915, 2014.
27. Chengyong Feng, Xiaozhen Xu, and Jean-Claude Diels. Generation of 300 ps laser pulse with 1.2 J energy by stimulated brillouin scattering in water at 532 nm. *Optics Letters*, 39:3367–3370, 2014.
28. J.-C. Diels and L. Arissian, "Intracavity Phase Interferometry: frequency combs sensor inside a laser cavity", *Nature Photonics* (invited, in press)
29. "Stable single-axial-mode operation of injection-seeded Q-switched Nd:YAG laser by real-time resonance tracking method." Xiaozhen Xu and J.-C. Diels. *Applied Physics B*, 2013.
30. Ladan Arissian, Daniel Mirell, Shermineh Rostami, , Jean-Claude Diels, Aaron Bernstein, and Daniele Faccio. The effect of propagation in air on the filament spectrum. *Optics Express*, **20**:8337–8343 (2012).
31. Andreas Velten, Andreas Schmitt-Sody, and Jean-Claude Diels. Precise intracavity phase measurement in an optical parametric oscillator with two pulses per cavity round-trip. *Optics Letters*, 35:1181–1183, 2010.
32. V. Kubecek, M. Jelinek, P. Hirsl, and J.-C. Diels. 0.4 mJ quasi-continuously pumped picosecond Nd : GdVO₄ laser with selectable pulse duration. *Laser Physics*, (2010), 20:DOI 10.1002, 2010.
33. M. Kolesik, D. Mirell, J. C. Diels, and J. V. Moloney. On the higher-order kerr effect in femtosecond filaments. *Optics Lett.*, 35:3685–3687, 2010. V. Kubecek, M. Drahekoupil, P. Zatorsky, P. Hirsl, M. Cech, A. Stintz, and J.-C. Diels. Quasi-continuously pumped passively mode-locked operation of a Nd : GdVO₄ and Nd : YVO₄ laser in a bounce geometry. *Laser Physics*, (2009), 19:396–399, 2009.
34. Ladan Arissian and Jean-Claude Diels. Investigation of carrier to envelope phase and repetition rate — fingerprints of mode-locked laser cavities. *Journal of Physics B: At. Mol. Opt. Phys*, 42:183001, 2009.
35. V. Kubecek, M. Drahekoupil, P. Zatorsky, P. Hirsl, M. Cech, A. Stintz, and J.-C. Diels. Quasi-continuously pumped passively mode-locked operation of a Nd : GdVO₄ and Nd : YVO₄ laser in a bounce geometry. *Laser Physics*, (2009), 19:396–399, 2009.

36. D. D. Smith, H. Chang, L. Arissian, and J.-C. Diels. Dispersive-enhanced laser gyroscope. *Physical Review A*, 78:053824, 2008.
37. D. Mirell, O. Chalus, K. Peterson, and J.-C. Diels. Remote sensing of explosives using infrared and ultraviolet filaments. *Journal of the Optical Society of America B*, 25:108–111, 2008.
38. Andreas Schmitt-Sody, Ladan Arissian, Andreas Velten, Jean-Claude Diels, and Dave Smith. Rabi cycling of two pulses in a mode-locked ring laser cavity with electro-optical control. *Physical Review A*, 78:063802, 2008.
39. Olivier Chalus, Alexey Sukhinin, Alejandro Aceves, and Jean-Claude Diels. Propagation of non-diffracting intense ultraviolet beams. *Optics Comm.*, **281**:3356–3360 (2008).
40. V. Kubecek, W. Zendzian, J. K. Jabczynski, J. Kwiatkowski, H. Jelinkova, A. Stintz, and J.-C. Diels. Side pumped nd:yag slab laser mode-locked using multiple quantum well saturable absorbers. *Laser Physics Letters*, 5:22-33, 2007.
41. A.Zavadilova, V. Kubecek, and J.-C. Diels. Picosecond optical parametric oscillator pumped synchronously, intracavity, by a mode-locked Nd:YVO₄ laser. *Laser Physics Letters*, 4:103–108, 2007.
42. Ladan Arissian and Jean-Claude Diels. Carrier to envelope and dispersion control in a cavity with prism pairs. *Physical Review A*, 75:013814–013824, 2007.
43. O. Chalus and J.-C. Diels. Lifetime of fluorocarbon for high-energy stimulated brillouin scattering. *J. Opt. Soc. Am. B*, 24:606–608, 2007.

5 Invited papers (since 2007)

1. Jean-Claude Diels and Ladan Arissian. Atmospheric propagation and impact on solids of short-intense laser pulses. In *Ultrashort laser pulse interactions, SPIE Ultrafast Bandgap Photonics conference*, volume 10518, Orlando, FL, 2018. SPIE.
2. Jean-Claude Diels. The poor man’s ligo. Seminar at Glasgow University, 2018.
3. Jean-Claude Diels. Will the attometer resolution follow the attosecond? Seminar at the Symposium on resollision physics 2018, 2018.
4. Jean-Claude Diels, Ali Rastegari, Ning Hsu, Kristen Peterson, and Ladan Arissian. Digging in the past for the filaments of the future. In *COFIL 2018*, Geneva, Switzerland, 2018.
5. Jean-Claude Diels, James Hendrie, Hanieh Afkhamiardakani, Luke Hortsman, Ning Hsu, Matthias Lenzner, and Ladan Arissian. Ultrafast lasers for sensors. In *8th EPS-QEOD Europhoton conference*, Barcelona, Spain, 2018.
6. Jean-Claude Diels and Ladan Arissian. Conditions for creating super-radiant emission in the sky. In *Photonics West, SPIE-LASE*, volume 10518, pages 10518–52, San Francisco, CA, 2018. SPIE.
7. Ladan Arissian and J.-C. Diels. Cavity designs for GHz frequency combs. In *Photonics West, SPIE-LASE*, volume 10090, pages 10090–5 – invited paper, San Francisco, CA, 2017. SPIE.
8. J-C Diels. Projecting high power density at long distance for standoff spectroscopy. In *SCientific eXchange SCIX conference 2017*, Laser induced breakdown spectroscopy, Reno, Nevada, 2017. IOP.
9. M. Lenzner and J.-C. Diels. A Fourier Sagnac interferometer (invited). In *18th International Conference on Transparent Optical Networks, ICTON*, page Tu.D4.1, Girona, Spain, 2017.
10. Jean-Claude Diels. Overview of 2016-2017 filament research at unnm. Year 5 annual Review of the ARO 2011 MURI Program on Light Filamentation Science, 2017.
11. Jean-Claude Diels and Ladan Arissian. Can a table-top laser match (beat?) the 10-18 m resolution of ligo? yes it can! by applying intracavity phase interferometry enhanced by resonant dispersion with mode-locked lasers. Seminar at the University of Geneva, 2017.

12. Jean-Claude Diels and Ladan Arissian. Intracavity phase interferometry, enhancement of the phase response with dispersion. Siegman School, 2016.
13. Jean-Claude Diels. Invasive surgery of the mode-locked laser: how to perform comb stabilization without electronics, and ultra-sensitive sensible phase sensing. Seminar at Air Force Research Laboratory, 2018.
14. Jean-Claude Diels and Ladan Arissian. Beam control through nonlinear propagation. In *Laser resonators and beam control XVIII, Photonics West, Conference 9727-51*, Invited paper, San Francisco, CA, 2016. SPIE.
15. Jean-Claude Diels and Ladan Arissian. Overview of 2015 filament research at UNM. Year 4 annual Review of the ARO 2011 MURI Program on Light Filamentation Science, 2016.
16. Jean-Claude Diels, Matthias Lenzner, Ladan Arissian, Brian Kamer, Amin Rasoulof, Ali Rastegari, and Chengyong Feng. Filaments for long range spectroscopy. In *Book of Abstracts COFIL 2016*, Quebec City, Canada, 2016.
17. Jean-Claude Diels and Ladan Arissian. Sensing within a mode-locked laser. Seminar at NASA Marshall Space Flight Center, 2016.
18. Jean-Claude Diels. Frequency combs to detect phase changes of 10^{-8} : Intracavity phase interferometry. Lectures at the Siegman International School on Lasers, 2016.
19. Jean-Claude Diels. Can one achieve (beat?) the ligo resolution with a table-top mode-locked laser. Seminar at Cornell University, 2016.
20. Jean-Claude Diels and Ladan Arissian. Beam control through nonlinear propagation. In *Laser resonators and beam control XVIII, Photonics West, Conference 9727-51*, San Francisco, CA, 2016. SPIE.
21. Jean-Claude Diels and Ladan Arissian. Two pulses waltzing in a laser cavity: exploiting the fs laser as the ultimate sensor. Seminar at the Max Planck Institute, 2015.
22. Jean-Claude diels, Ladan Arissian, Chenyong Feng, Ali Rastegari, and Brian Kamer. Title to be announced ... In *Conference on Laser, Weather, and Climate 2015 (LWC2015)*, Geneva, 2015.
23. Jean-Claude Diels, Matthias Lenzner, Kristen Peterson, and Ladan Arissian. Standoff detection of radiological materials using light filaments. Report for the Office of Defense Nuclear Nonproliferation Research and Development NNSA, 2015.
24. Jean-Claude Diels and Ladan Arissian. Overview of 2015 filament research at unm. Year 4 Annual Review of the ARO 2011 MURI Program on Light Filamentation Science, 2016.
25. Ladan Arissian and Jean-Claude Diels. “Multiple wavelengths interacting in a filament (Invited paper)”, 5th International Conference on Filamentation (COFIL), Shanghai, China (2014).
26. Jean-Claude Diels et al. Visualization of light filamentation in air and liquids. In *LASE LA106: Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications, Photonics West*, Invited paper, San Francisco, CA, 2014. SPIE.
27. Jean-Claude Diels and Ladan Arissian. Exploiting the “power and precision of lasers” for nuclear forensics. In *23rd International Conference on the Application of Accelerators in Research and Industry (CAARI)*, Invited paper, San Antonio, TX, 2014.
28. Jean-Claude Diels and Ladan Arissian. High power/high energy pulse generation and propagation. In *IEEE Photonics Conference 2014*, pages WG2.2, Invited paper, San Diego, CA, 2014.
29. Jean-Claude Diels and Ladan Arissian. Interaction of filaments with their surroundings. In *Filament symposium of Frontier in Optics (FIO) 2014*, LTh3H.3, Invited paper, Tucson, AZ, 2014.
30. Jean-Claude Diels and Ladan Arissian. Nonlinear interaction including phase couplings in Optical Parametric Amplifiers Seminar at the Institut National de la Recherche Scientific (INRS) Varennes,

- Canada (March 2014).
31. Jean-Claude Diels. Experimental characterization of single filaments; providing realistic parameters for numerical simulations Mathematical Methods and Models in Laser Filamentation, Montreal, 10 - 14 March 2014.
 32. Jean-Claude Diels You cannot buy all your research results with \$\$\$ Optics Seminar, CHTM, UNM November 20 (2014)
 33. Jean-Claude Diels and Ladan Arissian UV/IR filaments for high resolution novel spectroscopic interrogation of plumes of nuclear materials DTRA meeting, Springfield, July 21st (2014).
 34. Jean-Claude Diels and Ladan Arissian Combining Electromagnetic fields and filaments. Light Filamentation Science meeting, Washington dc, November 3 (2014)
 35. L. Arissian, Amin Rasoulof, Shermineh Rostami, Xiaozhen Xu, and Jean-Claude Diels. Non-equilibrium plasma index. In *Laser resonators and beam control XIV, Proceedings of Photonics West*, Invited paper, San Francisco, CA, 2013. SPIE.
 36. Koji Masuda, Jean-Claude Diels, Ladan Arissian and Xuan Luo. Intracavity phase interferometry and its application to magnetometry. In *LASE LA106: Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications, Photonics West*, Invited paper, San Francisco, CA, 2013. SPIE.
 37. Jean-Claude Diels and Ladan Arissian. Laser-matter interaction at unm/chtm. In *CLS-ALLS Workshop on Advanced Photon and Electron Sources*, Val David, Québec, Canada, 2013.
 38. “Power and Precision with laser pulses” (invited) J.-C. Diels and L. Arissian. In *Short pulse strong field Laser physics international symposium*, Québec City, Québec, Canada, 2013.
 39. “4D movie technique to study filaments, plasma and light induced discharge” Jean-Claude Diels and Ladan Arissian, 2nd International Laser Weather Conference, Genève, September 2013.
 40. “Nested Frequency combs” Jean-Claude Diels and Ladan Arissian, 4 corners APS conference, October 18, 2013.
 41. “4D filament movie and high voltage discharge” MURI “filament science” annual review, Washington dc, November 2013.
 42. “UV/IR filaments for high resolution novel spectroscopic interrogation of plumes of nuclear materials”, DTRA annual review, Springfield, VA, August 2013.
 43. L. Arissian, K. Masuda, and J.-C. Diels. Fine control of ultrashort pulse trains with a fabry-perot intracavity resonator. In *Laser resonators and beam control XIV, Proceedings of Photonics West*, Invited paper, San Jose, CA, 2012. SPIE.
 44. Jean-Claude Diels and Ladan Arissian. Light filaments: an intricate case of light matter? matter-light interaction. In *CLEO/QEL’ 12, Nonlinear Optical Technologies*, Invited Tutorial paper, San Jose, CA, 2012. OSA.
 45. Jean-Claude Diels. Single filaments/microscopic approach uv and ir. 1st annual workshop on Filamentation Science, 2012.
 46. Jean-Claude Diels and Ladan Arissian. Experiments with nested ir-uv filaments. 4th International Conference on Filamentation (COFIL), 2012.
 47. Ladan Arissian and Jean-Claude Diels. Strong field ionization effect on filament formation; a femtosecond observation of index of refraction. 4th International Conference on Filamentation (COFIL), 2012.
 48. Jean-Claude Diels. Filaments infra-rouge et ultraviolet dans l’atmosphere: illusion d’optique, ou “boulets optiques”? Seminar at the Institut National de la Recherche Scientifique (INRS), 2010.
 49. Jean-Claude Diels, Shermineh Rostami, Chengyong Feng, Daniel Mirell, and Jeremy Yeak. Super-

- continuum generation inside a filament: white lie or reality? In *SPIE's International Symposium, Photonics Europe (EPE10)*, pages 7728–39, Brussels, Belgium, 2010. SPIE.
50. Jean-Claude Diels. Ultrahigh resolution interferometry with ultrashort pulses. Seminar at Southampton University, 2010.
 51. Jean-Claude Diels and Ladan Arissian. Carrier to envelope offset and carrier to envelope phase; how their control impacts femtosecond and attosecond phenomena (tutorial talk). In *Frontiers in Optics, FIO 2010 - 94th OSA Annual Meeting*, page FTuX, Rochester, NY, 2010. Optical Society of America.
 52. Jean-Claude Diels. Filaments: raising questions about polarization, plasma, conical emission. In *Third Internal Conference on filamentation, COFIL*, Aghia Pelaghia, Crete, Greece, 2010.
 53. Jean-Claude Diels. Trying to get the CEO under control, as well as the CEP. In *Laser Physics 2009, LPHYS'09*, Invited paper, Barcelona, Spain, 2009.
 54. Jean-Claude Diels, J. Yeak, D. Mirell, R. Fuentes, S. Rostami, D. Faccio, and P. di Trapani. Air filaments and vacuum. In *Laser Physics 2009, LPHYS'09*, Invited paper, Barcelona, Spain, 2009.
 55. Jean-Claude Diels. Progress on the understanding of ir and uv filaments. ARO Workshop on Light Filamentation, 2009.
 56. Jean-Claude Diels. Bessel beams versus plasma channels. STELLA Workshop, 2009.
 57. Jean-Claude Diels. Incorporating source and application with ultrashort pulse lasers. The Rank Prize Funds: MINI-SYMPOSIUM ON ULTRASHORT PULSE SOURCES, 2009.
 58. Jean-Claude Diels. Pot pourri on short pulse applications: short pulses for long distance propagation, and infinitesimal changes in optical path. Seminar at Ohio State University, 2009.
 59. Jean-Claude Diels, Alejandro Aceves, Xiaozhen Xu, Daniel Mirell, Jeremy Yeak, Alexey Sukhinin, Olivier Chalus, and Alain Bourdier. Steady state to femtosecond filaments. In *Second International Symposium on Filamentation*, Invited paper, Paris, France, September 2008.
 60. Jean-Claude Diels. Le laser a blocage de mode: Un detecteur de sensibilite extreme. Seminar, Physics Research Group, Thales Research and Technology France, 2008.
 61. Jean-Claude Diels. The choice of the optimum metrology method for a given problem. Lecture serie at the University of Bordeaux, 2008.
 62. Jean-Claude Diels, Alejandro Aceves, Xiaozhen Xu, Daniel Mirell, Jeremy Yeak, Alexey Sukhinin, Olivier Chalus, and Alain Bourdier. Launching filaments from vacuum. In *Laser Physics'08, LPHYS'08*, Invited paper, Trondheim, Norway, July 2008.
 63. Jean-Claude Diels, Alejandro Aceves, Xiaozhen Xu, Olivier Chalus, Alexey Sukhinin, and Alain Bourdier. Filamentation with ultraviolet pulses. In *CLEO/QEL' 08, Joint symposium on filamentation in air*, Invited paper, San Jose, CA, May 2008.
 64. Jean-Claude Diels, Xiaozhen Xu, Olivier Chalus, Alejandro Aceves, and Alexey Sukhinin. Control of high energy uv filaments in the atmosphere. In *Laser resonators and beam control X, Proceedings of Photonics West*, Invited paper, San Jose, CA, January 2008. SPIE.
 65. Jean-Claude Diels. Scanning nanoscopy. Seminar, Quality Vision International, Inc., 2007.
 66. Jean-Claude Diels. Intense laser pulse propagation in the atmosphere. Seminar, Kansas State University, 2007.
 67. Jean-Claude Diels. Applications with not-so-short pulses: High energy filaments in air, and scanning nanoscopy. Seminar, Frei University of Berlin, Group of Professor Woeste, 2007.
 68. Jean-Claude Diels. Experimental and theoretical study of high energy long pulse uv filaments, from the filament to the cable. Nonlinear Optics and Spectroscopy 20-21 August, Leon, Mexico 2007.

6 Refereed conference papers (since 2009)

1. Hanieh Afkhamiardakani, James Hendrie, Luke Horstman, Mehran Tehran, Jean-Claude Diels, and Ladan Arissian. Ultrasensitive phase sensing inside a mode-locked fiber laser. In *OSA Advanced Photonics Congress*, Zurich, Switzerland, 2018. Optical Society of America.
2. Anthony Valenzuela, Kristopher Behler, Zachary Brunson, Ali Rastegar, Chengyong Feng, Christopher Wolfe, Laura Vanderhoef, Brian Kramer, Ladan Arissian, Aaron Schweinsberg, Jean-Claude Diels, and Aaron Stebner. Comparison of filament-generated periodic surface features using different laser wavelengths. In *CLEO, 2017*, page STh3J, San Jose, CA, 2017. Optical Society of America.
3. Anthony Valenzuela, Kristopher Behler, Ali Rastegar, Chengyong Feng, Brian Kramer, Ladan Arissian, Aaron Schweinsberg, Jean-Claude Diels, and Aaron Stebner. Multiscale periodic surface structures generated by short and ultrashort pulse laser filaments at different wavelengths. In *High power laser ablation conference*, Santa Fe, NM, 2018. Optical Society of America.
4. Ning Hsu and J.-C. Diels. High dynamic range single shot diagnostic of ultrashort pulses applied to optical parametric oscillator. In *Photonics West, SPIE-LASE*, volume 10089, pages 10089–25, San Francisco, CA, 2017. SPIE.
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6. J. Hendrie, H Afkhamiardakani, L Arissian, and J-C Diels. Intracavity sensors based on interferometry of frequency combs. In *Frontiers in Theoretical and Applied Physics I UAE2017*, volume IOP Conference proceedings, Dubai, UAE, 2017. IOP.
7. Amin Rasoulof, Jean Claude Diels, and Ladan Arissian. Measurement of polarization dependent nonlinear index for ultrashort pulse propagation in gas. In *Frontiers in Theoretical and Applied Physics I UAE2017*, volume IOP Conference proceedings, Dubai, UAE, 2017. IOP.
8. Ning Hsu and Jean-Claude Diels. How short should your nonlinear crystal be for pulse diagnostic? In *CLEO: 2017*, page STu4I.4. Optical Society of America, 2017.
9. Ning Hsu and J.-C. Diels. A complete temporal ultrashort pulse characterization system by applying cascading second-order nonlinearity inside a spectrometer. In *Photonics West, SPIE-LASE*, volume 10517, pages 10517–21, San Francisco, CA, 2018. SPIE.
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14. James Hendrie, Matthias Lenzner, Ladan Arissian, and Jean-Claude Diels. Large changes in gyro response of a mode-locked laser by creation of slow-light/fast-light with an intracavity Fabry-perot. In *Ultrafast Phenomena*, Santa Fe, NM, 2016.
15. Hanieh Afkhamiardakani, Brian Kamer, Jean-Claude Diels and Ladan Arissian, “Carbon nanotubes for ultrafast switching: nonlinear polarization”, Ultrafast phenomena conference, Santa Fe, NM, July 2016.

16. Brian Kamer, Ladan Arissian, Chengyong Feng, Amin Rasoulof and Jean-Claude Diels, “Influence of rotational wavepackets on the nitrogen ion emission in filaments”, Ultrafast phenomena conference, Santa Fe, NM, July 2016.
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32. Amin Rasoulof, Danhua Wang, Ladan Arissian, Alejandro B. Aceves and Jean-Claude Diels. “Four wave mixing and coupled solitons”, In *LASE LA106: Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications, Photonics West*, [8964-16] San Francisco, CA, 2014. SPIE.

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39. Shermineh Rostami, Michael Chini, Khan Lim, Magali Durand, Matthieu Baudelet, Jean-Claude Diels, Martin Richardson and Ladan Arissian, “Measurements of the impact of polarization on filaments and the associated supercontinuum”, In *Filament symposium of Frontier in Optics (FIO) 2014*, Post Deadline paper, Tucson, AZ, 2014.
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