

MATTHIEU BAUDELET

Assistant Professor of Chemistry
Chemistry Department & National Center for Forensic Science
University of Central Florida, Orlando, FL 32816, USA

Matthieu BAUDELET graduated with a B.S. in Physics in the University of Lille (France) in 2003, starting his experience in Spectroscopy with Fourier-Transform Microwave Spectroscopy. In 2005, he graduated with a M.S. in "Laser and Spectroscopy" in the University of Lyon (France) and continued to complete his Ph.D. in the 'Laboratoire de Spectrométrie Ionique et Moléculaire' (Lasim, Lyon) working on "Laser-induced plasma and spectroscopic analysis" under the direction of Pr. Jin YU. He showed the advantages of LIBS for biological sensing and food monitoring and wrote publications on the use of femtosecond pulses to improve this technique and the development of analytical techniques to understand and extract the maximum of information from the LIBS spectrum of bacteria. He continued his research on laser spectroscopy and sensing as a Senior Research Scientist for the Townes Laser Institute at the University of Central Florida (Orlando, FL). His panel covers the fundamentals of laser-induced plasmas, the application of laser spectroscopies such as LIBS, Fluorescence, Raman, FTIR, ... as fundamental diagnostics as well as sensing techniques for defense, industrial, environmental, biomedical applications and the study of propagation of ultrashort laser pulses for sensing purposes at distances up to the kilometer range. From 2012 to 2015, as a Research Assistant Professor of Optics in the Laser & Plasma Laboratory in the Townes Laser Institute, he is introducing and developing laser spectroscopy for atomic spectroscopy as well as electronic, vibrational and rotational molecular spectroscopy for studying fundamentals of plasmas, quantitative analysis and sensing in tabletop and integrated configuration as well as for stand-off detection. The fields of application go from forensic science (with a secondary joint appointment at the National Center for Forensic Science) to biomedical diagnostic to manufacturing optimization.

Now Assistant Professor of Chemistry in the National Center for Forensic Science at the University of Central Florida, his research focuses on the application of laser-based spectroscopy for forensic analysis: atomic spectroscopy with laser ablation techniques (LIBS and LA-ICP-MS) as well as micro-spectroscopy for trace analysis. A large part of his research focuses also on the quantification of interferences in spectroscopic signals.

POSITIONS

- 2015-present Assistant Professor (National Center for Forensic Science/Chemistry department, University of Central Florida, FL, USA)
Forensic spectroscopy
- 2015-present Secondary Joint Appointment at CREOL – The College of Optics and Photonics (University of Central Florida, FL, USA)
- 2012-2015 Research Assistant Professor (Townes Laser Institute, University of Central Florida, FL, USA)
Laser Spectroscopy and Sensing
- 2013-2015 Secondary Joint Appointment at the National Center for Forensic Science (University of Central Florida, FL, USA)
- 2008-2012 Senior Research Scientist (Townes Laser Institute, University of Central Florida, FL, USA)

*Laser Spectroscopy and Sensing
Filamentation and Engineered Propagation*

- 2005-2008 Graduate Teaching Assistant (University of Lyon, France)
Electrokinetics
Numerical Analysis in C and C++
- 2005-2008 Graduate Research Assistant (LASIM, University of Lyon, France)

FORMATION

- 2005-2008 PhD thesis *Plasma spectroscopy* “Physical-chemical properties of laser-induced plasmas in nanosecond and femtosecond regimes: Analytical applications to bacteria and food samples” (Advisor: Pr. Jin Yu, LASIM, Lyon, France)
- 2003-2005 M. Sc. *Physics and Technologies* (University of Lyon, France)
- 2000-2003 B. Sc. *Physics* (University of Lille I, France)

PROFESSIONAL SOCIETIES MEMBERSHIP

- 2012-present North-American Society of Laser-Induced Breakdown Spectroscopy (NASLIBS)
- 2011-present Society of Applied Spectroscopy (SAS)
- 2010-11, 13-present Optical Society of America (OSA)
- 2008-2009 SPIE

SYNERGISTIC ACTIVITIES

- 2017 Program chair of SciX 2017
- 2017 Chair of the NASLIBS meeting
- 2016 Session chair for SciX 2016 (LIBS for forensic analysis)
- 2016 Section chair for SciX 2016 (Laser-Induced Breakdown Spectroscopy)
- 2016 Award chair of SciX 2016
- 2015-2017 President of North-American Society of Laser-Induced Breakdown Spectroscopy
- 2015 Co-chair of the NASLIBS meeting
- 2015 Session chair for NASLIBS meeting (Stand-off LIBS)
- 2015 Member of the FACSS Innovation award committee
- 2014-present Member of CREOL Industrial Affiliates Day Committee
- 2014-present Member of CREOL Student of the Year Committee
- 2014-15 Chair of the SAS Lester Strock Award Committee
- 2014-present Member of the FACSS and Scix Long Range Planning committee
- 2014 Section chair for SciX 2014 (Laser-Induced Breakdown Spectroscopy)
- 2013-2015 President-elect of North-American Society of Laser-Induced Breakdown Spectroscopy
- 2012-2015 Member of the UCF International Affairs Committee

- 2013-2014 OSA Technical Group chair for Applied Spectroscopy
- 2013-2014 Chair-elect of the SAS Lester Strock Award Committee
- 2013 Session chair for North-American Symposium on Laser-Induced Breakdown Spectrometry 2013 (Biological applications of LIBS)
- 2012 Session chair for SciX 2012 (Elemental Signatures for Forensics)
- 2012 Section chair for SciX 2012 (Laser-Induced Breakdown Spectroscopy)
- 2011 Session chair for North-American Symposium on Laser-Induced Breakdown Spectrometry 2011 (Quantitative Analysis)
- 2010-present Manager of LinkedIn group on “Laser-Induced Breakdown Spectroscopy”
- 2006-present Peer-reviewer for:
- Analytical and Bioanalytical Chemistry
 - Analytical Chemistry
 - Applied Optics
 - Applied Physics B
 - Applied Spectroscopy
 - Chemical Physics Letters
 - Current Applied Physics
 - Journal of Analytical Atomic Spectroscopy
 - Journal of Physical Chemistry
 - Journal of Physics: Conference Series
 - Journal of Optics and Laser Technologies
 - Materials Today
 - Optics and Lasers in Engineering
 - Optics Express
 - Sensors and Actuators B
 - Spectrochimica Acta Part B
 - Surface Science Reports
 - Technology and Innovation, Proceedings of the National Academy of Inventors
- 2007 Member of the organizing committee of the “2nd France-China Workshop on Intense Lasers and Applications”
- 2006-2008 Organizer of the LASIM PhD students seminars

EXTERNAL REVIEWER APPOINTMENTS

- 2016 US DOE Office of Defense Nuclear Nonproliferation Research and Development
- 2014 NASA Planetary Protection Research program
- 2013 US DOE Office of Defense Nuclear Nonproliferation Research and Development
- 2013 NASA Planetary Protection Research program
- 2010 US DOJ Research and Development on Instrumental Analysis for Forensic Science Applications

DISTINCTIONS AND AWARDS

- 2012-2013 UCF Research Millionaire
2012-2014 UCF Innovator

POST-DOCTORAL ASSOCIATE SUPERVISION

- 2016-present Mauro Martinez

STUDENT SUPERVISION

- 2016 Derek Makara, undergraduate (University of Central Florida, Forensic)
- 2016 Maria Andreoli, undergraduate (University of Central Florida, Biology)
- 2016-present Spencer Dalrymple, undergraduate (University of Central Florida, Chemistry/Computer Science)
- 2015-present Kelsi Kuehn, undergraduate (University of Central Florida, Forensic/Anthropology)
- 2015-present Bryan McCullough, PhD student (University of Central Florida, Chemistry)
- 2014-present Jessica Chappell, PhD student (University of Central Florida, Chemistry, co-advised with M.E. Sigman)
- 2013-present Brandon Seesahai, undergraduate (University of Central Florida, Optics)

THESIS/DISSERTATION COMMITTEES

- 2016 Abigail Woltering (University of Central Florida, Anthropology) – Member of the Masters committee
- 2016 Daniel Kepler (University of Central Florida, Optics) – Member of the Masters committee
- 2016 Cheonha Jeon (University of Central Florida, Optics) – Member of the PhD committee
- 2015 Alex Sincore (University of Central Florida, Optics) – Member of the candidacy committee
- 2015 John Szilagyi (University of Central Florida, Electrical Engineering) - Member of the candidacy committee
- 2013 Erik McKee (University of Central Florida, Physics) – Member of the Masters committee
- 2013 Cheonha Jeon (University of Central Florida, Optics) – Member of the candidacy committee
- 2012 Qianli Ma (University of Lyon, Physics) - Invited member of the PhD committee

TEACHING

- 2016 Trace evidence analysis (Spring)
- 2015 Forensic microscopy (Fall)

CONTRACT MANAGEMENT

- 2015-2016 UV-Vis Microcombs Based on ec-cut (Al,Ga)N (sub-recipient PI) – DARPA SCOUT
- 2015-2016 Extended Studies of Air Filamentation (co-PI) – ARO
- 2014-2016 DURIP: Mobile Ultrafast High Energy Laser Facility (MU-HELFL) (co-PI) - ARO
- 2014-2016 LIBS for soil screening – study of matrix effects on elemental profiling (PI) - NIJ
- 2013-2015 DURIP: Chamber for laser propagation through aerosol medium (PI) - ARO
- 2013-2016 Level of confidence in elemental analysis by LIBS (PI) - NIJ
- 2012-2014 DURIP: Phase-Stabilized Terawatt High Energy Ultra-Short (PhaSTHEUS) Laser Facility (co-PI) - ARO
- 2011-2016 MURI: Light filamentation science (co-PI) - ARO
- 2010-2015 MRI: Fundamentals for filament interaction (co-PI) – HEL-JTO AFOSR
- 2011 Development of Raman optical tweezers (PI) – Thorlabs
- 2011 Development of a continuous-scan time-resolved Fourier-Transform infrared spectrometer (PI) - Oriel
- 2010-2011 DURIP: Phase-controlled multi-TW femtosecond laser (PCMTFL) (co-PI) – ARO
- 2009-2012 *Engineered laser filaments in air for defense stand-off sensing and interaction applications – ARO*
- 2008-2009 *DURIP: Laser Ignition Facility for Energetic Materials (LIFEM) – ARO*
- 2008-2009 *SBIR: TSR-Shield: Time and Spatially Resolved Standoff Hyperspectral Imaging Explosives – ChemImage Corp.*
- 2007-2012 *MURI: Ultrafast Laser Interaction Processes for LIBS and other Sensing Technologies – ARO*

BOOKS AND BOOK CHAPTERS

2015

1. A. Couairon, V. Jukna, J. Darginavicius, D. Majus, N. Garejev, I. Gražuleviciute, G. Valiulis, G. Tamošauskas, A. Dubietis, F. Silva, D.R. Austin, M. Hemmer, M. Baudisch, A. Thai, J. Biegert, D. Faccio, A. Jarnac, A. Houard, Y. Liu, A. Mysyrowicz, S. Grabielle, N. Forget, A. Durécu, M. Durand, K. Lim, E. McKee, M. Baudelet, and M. Richardson, "Filamentation and Pulse Self-compression in the Anomalous Dispersion Region of Glasses", Editors: Andre D. Bandrauk, Emmanuel Lorin, Jerome V. Moloney, Laser Filamentation - Mathematical Methods and Models, Part of the series CRM Series in Mathematical Physics, Springer, pp 147-165

2014

2. Matthieu Baudelet (editor), "Laser spectroscopy for sensing: Fundamentals, techniques and applications", Woodhead Publishing Ltd (2014)

PEER-REVIEWED PUBLICATIONS

2016

1. Shermineh Rostami, Michael Chini, Khan Lim, John Palastro, Magali Durand, Jean-Claude Diels, Ladan Arissian, Matthieu Baudelet, Martin Richardson, “Dramatic enhancement of supercontinuum generation in elliptically-polarized laser filaments”, *Scientific Reports* **6**, 20363 (2016)

2015

2. Matthew Weidman, Mark Ramme, Bruno Bousquet, Khan Lim, Magali Durand, Matthieu Baudelet, Martin Richardson, “Laser filament-induced plasma emission: quantification and angular dependence”, *Optics Letters* **40**, 4548-4551 (2015)
3. Cheonha Jeon, Danielle Harper, Khan Lim, Magali Durand, Matthieu Baudelet, and Martin Richardson, “Interaction of a single laser filament with a single aerosol”, *Journal of Optics* **17** 055502 (2015)

2014

4. Khan Lim, Magali Durand, Matthieu Baudelet, Martin Richardson, “Transition from linear- to nonlinear-focusing regime in filamentation”, *Scientific Reports* **4**, 7217 (2014)
5. R. Casey Boutwell, , M. Wei, Matthieu Baudelet, Winston V. Schoenfeld, “Investigation and impact of oxygen plasma compositions on cubic ZnMgO grown by Molecular Beam Epitaxy”, *Journal of Alloys and Compounds* **584** (2014) 327–330
6. Nicholas Barbieri, Zahra Hosseinimakarem, Khan Lim, Magali Durand, Matthieu Baudelet, Eric Johnson, Martin Richardson, “Helical filaments”, *Applied Physics Letters* **104** (2014) 261109

2013

7. Harby Ezzeldeen Ahmed, Yuan Liu, Matthieu Baudelet, Bruno Bousquet, Martin Richardson, “Investigation of Historical Egyptian Textile using Laser-Induced Breakdown Spectroscopy (LIBS) - a case study”, *Journal of Textile and Apparel, Technology and Management* **8**(2) (2013),
8. Magali Durand, Khan Lim, Vytautas Jukna, Erik McKee, Matthieu Baudelet, Aurélien Houard, Martin Richardson, André Mysyrowicz, Arnaud Couairon, “Blueshifted continuum peaks from filamentation in the anomalous dispersion regime”, *Phys. Rev. A* **87**, 043820 (2013)
9. Matthieu Baudelet and Benjamin W. Smith, “The first years of laser-induced breakdown spectroscopy”, *J. Anal. At. Spectrom.*, 2013, **28** (5), 624 - 629

2012

10. Caitlin N Rinke, Mary R Williams, Christopher Brown, Matthieu Baudelet, Martin Richardson, Michael E. Sigman, “Discriminant Analysis in the Presence of Interferences: Combined Application of Target Factor Analysis and a Bayesian Soft-Classifer”, *Analytica Chimica Acta* **753**, 19– 26 (2012)
11. Yuan Liu, Lionel Gigant, Matthieu Baudelet, Martin Richardson, “Correlation between Laser-Induced Breakdown Spectroscopy signal and moisture content”, *Spectrochimica Acta B* **70**, 71-74 (2012)
12. Yuan Liu, Bruno Bousquet, Matthieu Baudelet, Martin Richardson, “Improvement of the sensitivity for the measurement of copper concentrations in soil by Microwave-Assisted Laser-Induced Breakdown Spectroscopy”, *Spectrochimica Acta B* **73**, 89-92 (2012)
13. Matthew Weidman, Khan Lim, Mark Ramme, Magali Durand, Matthieu Baudelet, Martin Richardson, “Stand-off filament-induced ablation of gallium arsenide”, *Applied Physics Letters* **101**, 034101 (2012)

2011

14. Nicholas Barbieri, Matthew Weidman, Gregory Katona, Matthieu Baudelet, Zachary Roth, Eric Johnson, Georgios Siviloglou, Demetrios Christodoulides, Martin Richardson, "Double helical laser beams based on interfering first order Bessel beams", *Journal of the Optical Society of America A* **28**, 1462-1469 (2011)

2010

15. Yuan Liu, Matthieu Baudelet, Martin Richardson, "Elemental analysis by microwave-assisted laser-induced breakdown spectroscopy: Evaluation on ceramics", *J. Anal. At. Spectrom.* **25**, 1316-1323 (2010)
16. Matthieu Baudelet, Christina C.C. Willis, Lawrence Shah, Martin Richardson, "Laser-induced breakdown spectroscopy of copper with a 2 μm thulium fiber laser", *Optics Express* **18**, 7905-7910 (2010)
17. Matthew Weidman, Matthieu Baudelet, Santiago Palanco, Michael Sigman, Paul J. Dagdigian, Martin Richardson "Nd:YAG-CO₂ double-pulse laser induced breakdown spectroscopy of organic films" *Optics Express* **18**, 259-266 (2010)

2009

18. Matthew Weidman, Santiago Palanco, Matthieu Baudelet, Martin C. Richardson, "Thermodynamic and spectroscopic properties of Nd:YAG-CO₂ Double-Pulse Laser-Induced Plasma of Iron," *Spectrochimica Acta Part B* **64** (2009) 961–967
19. Myriam Boueri, Matthieu Baudelet, Jin Yu, X. L. Mao, S. S. Mao, R. E. Russo, "Early stage expansion and time-resolved spectral emission of laser-induced plasma from polymer," *Applied Surface Science* **255**, issue 24, pages 9566-9571 (2009)

2008

20. Vincent Juvé, Richard Portelli, Myriam Boueri, Matthieu Baudelet, Jin Yu, "Space-resolved analysis of trace elements in fresh vegetables using UV nanosecond laser-induced breakdown spectroscopy," *Spectrochimica Acta Part B* **63**, pages 1047-1053 (2008)

2007

21. Myriam Bossu, Zuo-Qiang Hao, Matthieu Baudelet, Jin Yu, Zhe Zhang, Jie Zhang, "Femtosecond Laser-Induced Breakdown Spectroscopy for Detection of Trace Elements in Sophora Leaves," *Chinese Physics Letters* **24**, number 12, pages 3466-3469 (2007)
22. Matthieu Baudelet, Myriam Boueri, Jin Yu, S. S. Mao, Vincent Piscitelli, X. L. Mao, R. E. Russo, "Time-resolved ultraviolet laser-induced breakdown spectroscopy for organic material analysis," *Spectrochimica Acta Part B* **62**, pages 1329-1334 (2007)

2006

23. Matthieu Baudelet, Jin Yu, Myriam Bossu, Julien Jovelet, Jean-Pierre Wolf, Tanguy Amodeo, Emeric Fréjafon, Patrick Laloi, "Discrimination of microbiological samples using femtosecond laser- induced breakdown spectroscopy," *Applied Physics Letters* **89**, page 163903 (2006)
24. Matthieu Baudelet, Laurent Guyon, Jin Yu, Jean-Pierre Wolf, Tanguy Amodeo, Emeric Fréjafon, Patrick Laloi, "Femtosecond time-resolved laser-induced breakdown spectroscopy for detection and identification of bacteria: A comparison to the nanosecond regime," *Journal of Applied Physics* **99**, page 084701 (2006)
25. Matthieu Baudelet, Laurent Guyon, Jin Yu, Jean-Pierre Wolf, Tanguy Amodeo, Emeric Fréjafon,

Patrick Laloi, "Spectral signature of native CN bonds for bacterium detection and identification using femtosecond laser-induced breakdown spectroscopy," *Applied Physics Letters* **88**, page 063901 (2006)

2003

26. D. Gerhard, A. Hellweg, I. Merke, W. Stahl, Matthieu Baudelet, Denis Petitprez, Georges Wlodarczak, "Internal rotation and chlorine nuclear quadrupole coupling of o-chlorotoluene studied by microwave spectroscopy and ab initio calculations," *Journal of Molecular Spectroscopy* **220**, pages 234-241 (2003)

PATENTS

1. Romain Gaume, Matthieu Baudelet, Matthew Chun, "Apparatus and method for material fabrication and analysis and applications thereof", *US Patent application 61/884,272*
2. Matthieu Baudelet, "Quantitative Elemental Profiling in Optical Emission Spectroscopy", *US Patent application US 2015/0153225 A1*
3. M. C. Richardson, Y. Liu, M. Baudelet, "LIBS Moisture Monitoring System." *Patent disclosure to University of Central Florida*
4. Jin Yu, Matthieu Baudelet, "Unité d'excitation lumineuse d'un échantillon et de collection de la lumière émise par ledit échantillon excité" *Patent FR 09 50454*
5. Matthieu Baudelet, Jin Yu, "Détection de métaux dans les produits agroalimentaires" *Patent FR 06 51720*

CONFERENCE PROCEEDINGS

2015

1. S. Rostami, M. Chini, K. Lim, M. Durand, M. Baudelet, M. Richardson, J. Diels, and L. Arissian, "Enhanced Supercontinuum Generation by Polarization Control of Filamentation in Molecular Gases," in *CLEO: 2015, OSA Technical Digest (online)* (Optical Society of America, 2015), paper SF2D.5.
2. Cheonha Jeon, Danielle Harper, Khan Lim, Magali Durand, Michael Chini, Matthieu Baudelet, and Martin Richardson, "Interaction between a single water droplet and a laser filament," *Lasers and Electro-Optics Pacific Rim (CLEO-PR)*, 2015 11th Conference on, Busan, 2015, pp. 1-2.
3. C. Jeon, D. Harper, K. Lim, M. Durand, M. Chini, M. Baudelet, and M. Richardson, "Spatial Dependence of the Interaction between a Single Aerosol and a Laser Filament on its Reformation," in *CLEO: 2015, OSA Technical Digest (online)* (Optical Society of America, 2015), paper FTu4D.8.
4. K. Lim, M. Durand, M. Baudelet, and M. Richardson, "Transition between linear and nonlinear focusing regimes during filamentation," in *CLEO: 2015, OSA Technical Digest (online)* (Optical Society of America, 2015), paper FTu4D.4.

2014

5. S. Rostami, M. Chini, K. Lim, M. Durand, M. Baudelet, J. M. Diels, M. Richardson, and L.

Arissian, "Measurements of the impact of polarization on filaments and the associated supercontinuum," in *Frontiers in Optics 2014, OSA Technical Digest (online)* (Optical Society of America, 2014), paper FTh2A.5.

6. M. Richardson, M. Durand, M. Baudelet, N. Barbieri, M. Chini, K. Lim, C. Jeon, N. Litchinitser, Z. Kudyshev, S. Will, Z. Roth, and E. Johnson, "Nonlinear Radiation Effects with Filaments - Inside and Outside," in *Frontiers in Optics 2014, OSA Technical Digest (online)* (Optical Society of America, 2014), paper FTh1F.1.
7. Benjamin Webb, Joshua Bradford, Khan Lim, Nathan Bodnar, Andreas Vaupel, Erik McKee, Matthieu Baudelet, Magali M Durand, Lawrence Shah, Martin Richardson, "Compact 10 TW laser to generate multi-filament arrays", *Frontiers in Optics 2014, OSA Technical Digest (online)* (Optical Society of America, 2014), paper SM1F.6 (2014)
8. Cheonha Jeon, Magali M Durand, Matthieu Baudelet, Martin Richardson, "Filament Interaction with Micro-Water Droplets", *CLEO: Science and Innovations*, STh4B.6 (2014)
9. Nicholas Barbieri, Zahra Hosseinimakarem, Khan Lim, Magali Durand, Benjamin Webb, Joshua Bradford, Erik McKee, Nathan Bodnar, Lawrence Shah, Matthieu Baudelet, Eric Johnson, Martin Richardson, "Helical filaments", *CLEO: Science and Innovations*, FTu3D.6 (2014)

2013

10. Erik McKee, Khan Lim, Magali Durand, Ramakrishna Sessa Shankar, Matthieu Baudelet, Tamar Seideman, Martin Richardson, "Filamentation as a diagnostic to measure molecular alignment", *Laser Science*, JW3A.7, (2013)
11. Khan Lim, Magali Durand, Vytautas Jukna, Erik McKee, Matthieu Baudelet, Aurélien Houard, Martin Richardson, André Mysyrowicz, Arnaud Couairon, "Blueshifted Continuum Peaks from Filamentation in the Anomalous Dispersion Regime", *Frontiers in Optics*, FTh1A.4 (2013)
12. Magali Durand, Khan Lim, Vytautas Jukna, Erik McKee, Matthieu Baudelet, Aurelien Houard, Martin Richardson, André Mysyrowicz, Arnaud Couairon, "Influence of the anomalous dispersion on the supercontinuum generation by femtosecond laser filamentation", *CLEO: QELS_Fundamental Science*, QW1E.8 (2013)
13. Yuan Liu, Bruno Bousquet, Martin Richardson, Matthieu Baudelet, "Thomson scattering from aluminum laser plasmas in air", *CLEO: QELS_Fundamental Science*, JTh2A.04 (2013)
14. Khan Lim, Magali Durand, Xuan Sun, Fabrizio Buccheri, Matthew Weidman, Bruno Bousquet, Matthieu Baudelet, Xi-Cheng Zhang, Martin Richardson, "Broadband THz detection in the counter-propagating configuration using THz-enhanced plasma fluorescence", *CLEO: Science and Innovations*, CM4J.3 (2013)
15. Lawrence Shah, Tobias Bonhoff, Thomas Ferhat, Ashraf F El-Sherif, Mark Ramme, Christina CC Willis, Matthieu Baudelet, Pankaj Kadwani, Christian Gaida, Martin Gebhardt, Ilya Mingareev, Martin Richardson, "Silicon backside machining using a nanosecond 2- μ m Tm: fiber laser", *SPIE MOEMS-MEMS*, 861207-861207-6 (2013)

2012

16. Martin Richardson, Matthieu Baudelet, Michael Sigman, Andrzej Miziolek, "Stand-off chemical and biological sensing", *Laser Science*, LTh4F.2 (2012)
17. C. Butler, S. Fardad, A. Sincore, M. Vangheluwe, M. Baudelet, M. Richardson, "Multispectral optical tweezers for molecular diagnostics of single biological cells"; *Proceedings of SPIE*, **8225**, 82250C (2012)

18. Q. L. Ma, V. Motto-Ros, W. Q. Lei, X. C. Wang, M. Boueri, F. Laye, C. Q. Zeng, M. Sausy, A. Wartelle, X. S. Bai, L. J. Zheng, H. P. Zeng, M. Baudelet, J. Yu, "Characteristics of laser-induced plasma as a spectroscopic light emission source", The 17th international conference on atomic processes in plasmas (ICAPIP), AIP Conference Proceedings **1438**, 243-248 (2012)

2010

19. M. Baudelet, Y. Liu, and M. Richardson, "Microwave-Assisted LIBS: Towards a New Tool for Trace Element Detection and Molecular Plasma Spectrochemistry,"; *Laser Applications to Chemical, Security and Environmental Analysis*, OSA Technical Digest Series (CD) (Optical Society of America, 2010), paper LWC3P
20. M. Baudelet, C. Willis, L. Shah, and M. Richardson, "Tm-Fiber 2 μm Laser for Laser-Induced Plasma Spectroscopy of Organic and Biological Materials," in *Laser Applications to Chemical, Security and Environmental Analysis*, OSA Technical Digest Series (CD) (Optical Society of America, 2010), paper LWC2.
21. M. Weidman, M. Baudelet, M. E. Sigman, P. J. Dagdigian, and M. Richardson, "Nd:YAG-CO₂ Double-Pulse Laser Induced Breakdown Spectroscopy for Explosive Detection," in *Laser Applications to Chemical, Security and Environmental Analysis*, OSA Technical Digest Series (CD) (Optical Society of America, 2010), paper LWD3.
22. Christina C. C. Willis, Lawrence Shah, Matthieu Baudelet, Pankaj Kadwani, Timothy S. McComb, R. Andrew Sims, Vikas Sudesh, Martin Richardson, "High-energy Q-switched Tm³⁺-doped polarization maintaining silica fiber laser", Proceedings of SPIE, volume 7850, pages 785003-1 (2010)

2009

23. Matthieu Baudelet, Martin C. Richardson, Michael Sigman, "Self-channeling of femtosecond laser pulses for rapid and efficient standoff detection of energetic materials," Proceedings of IEEE Conference on Technologies for Homeland Security, pages 472-476 (2009)
24. Christopher G. Brown, Matthieu Baudelet, Candice Bridge, Matthew Fisher, Michael Sigman, Paul J. Dagdigian, Martin C. Richardson, "Atmosphere Issues in Detection of Explosives and Organic Residues," Proceedings of SPIE, volume 7304, pages 73041D-1 (2009)
25. Matthew Weidman, Matthieu Baudelet, S. Fischer, Candice Bridge, Christopher G. Brown, Michael Sigman, Paul J. Dagdigian, Martin C. Richardson, "Molecular signal as a signature for detection of energetic materials in filament-induced breakdown spectroscopy," Proceedings of SPIE, volume 7304, pages 73041G-1 (2009)
26. James Martin, Matthieu Baudelet, Matthew Weidman, Matthew Fisher, Candice Bridge, Christopher G. Brown, Michael Sigman, Paul J. Dagdigian, Martin C. Richardson, "Stand-off detection of organic samples using filament-induced breakdown spectroscopy," Proceedings of SPIE, volume 7306, pages 73060Z-1 (2009)
27. Matthieu Baudelet, Myriam Boueri, Jin Yu, X. L. Mao, S. S. Mao, R. E. Russo, "Laser ablation of organic materials for discrimination of bacteria in an inorganic background," Proceedings of SPIE, volume 7214, pages 72140J-1 (2009)

2008

28. Matthieu Baudelet, Myriam Boueri, Jin Yu, S. S. Mao, X. L. Mao, R. E. Russo, "Correlation between early-stage expansion and spectral emission of a nanosecond laser-induced plasma from organic material," Proceedings of SPIE, volume 7005 (2008)

2007

29. Laurent Guyon, Matthieu Baudelet, Tanguy Amodeo, Emeric Frejafon, Patrick Laloi, Jin Yu, Jean-Pierre Wolf, "Laser-Induced Breakdown Spectroscopy analysis of Bacteria: What Femtosecond Lasers Make Possible," Ultrafast Phenomena XV, Proceedings of the 15th International Conference, Springer Berlin Heidelberg (2007), volume 88, pages 193-195 (2007)

PRESS RELEASES

2015

1. "Laser interaction with droplets - Understanding the propagation of femtosecond laser filaments through fogs and clouds", Journal of Optics – LabTalk (2015)
<http://iopscience.iop.org/2040-8986/labtalk-article/61892>
2. "Analysis of the State of the Art: Laser-Induced Breakdown Spectroscopy", Spectroscopy Magazine (June, 2015)
<http://images2.advanstar.com/PixelMags/spectroscopy/digitaledition/06-2015.html#74>

2013

3. "Matthieu Baudelet Joins Spectroscopy's Editorial Advisory Board", Spectroscopy Online (January, 2013)
<http://www.spectroscopyonline.com/spectroscopy/article/articleDetail.jsp?id=802453>

2012

4. Yuan Liu, Matthieu Baudelet, Martin Richardson, "Moisture Measurement Using LIBS", G.I.T. Laboratory Journal Europe (June, 2012)
<http://www.laboratory-journal.com/science/chemistry-physics/moisture-measurement-using-libs>

2010

5. Andy Whitehouse, Ken Kaufman, Matthieu Baudelet and Rob Morris, "Optics and Lasers", Discussion hosted by Spectroscopy Online (10/08, 2010)
<http://spectroscopyonline.findanalytichem.com/spectroscopy/article/articleDetail.jsp?id=690503>
6. Matthieu Baudelet, "Basic Principles of Laser-Induced Breakdown Spectroscopy", Webcast hosted by Spectroscopy Online (09/29, 2010)
<http://www.youtube.com/watch?v=6AfZm0O7VIs>
7. Jin Yu, Matthieu Baudelet, "Spectroscopy detects toxins in veggies", Photonics Spectra (February 2010)
<http://www.photonics.com/Article.aspx?AID=41333>

2009

8. Jin Yu, Matthieu Baudelet, "First direct measurements of trace pollutants in fresh vegetables using laser plasma spectroscopy", News from Andor Technology (2009)
<http://www.andor.com/company/news/?docID=1021>

2008

9. Jin Yu, Myriam Boueri, Vincent Motto-Ros, Matthieu Baudelet, Wenqi Lei, "Laser-induced plasma for detecting trace elements in biological materials," SPIE Newsroom (2008)
<http://spie.org/x31802.xml?ArticleID=x31802>

ORAL PRESENTATIONS AND POSTERS

2016

1. Sudeep Jung Pandey, Richard Locke, Brandon Seesahai, Romain Gaume, Martin Richardson, Matthieu Baudelet, “Study of Matrix effects for reproducible LIBS analysis of powders”, Pittcon 2016; Atlanta, GA, USA; 03/08, 2016
2. Jessica Chappell, Brandon Seesahai, Martin Richardson, Michael Sigman, Matthieu Baudelet, “Quantitative evaluation of spectral interference in Atomic Emission Spectroscopy”, Pittcon 2016; Atlanta, GA, USA; 03/07, 2016.
3. Jessica Chappell, Brandon Seesahai, Martin Richardson, Michael E. Sigman, Matthieu Baudelet, “Spectral line assignment: a statistical approach for forensic applications”, Winter Conference on Plasma Spectrochemistry; Tucson, AZ, USA; 01/12, 2016

2015

4. Matthieu Baudelet, “From the calibration curve to machine learning: the evolution of quantitative LIBS data analysis”, SciX 2015; Providence, RI, USA; 10/01, 2015. *Invited paper*.
5. Jessica Chappell, Brandon Seesahai, Martin Richardson, Michael Sigman, Matthieu Baudelet, “Quantitative evaluation of spectral interference in LIBS”, SciX 2015; Providence, RI, USA; 09/30, 2015. *Invited paper*.
6. Matthieu Baudelet, Matthew Weidman, Mark Ramme, Khan Lim, Magali Durand, Martin Richardson, “Stand-off LIBS using laser filamentation: fundamental characterization for quantitative analysis”, SciX 2015; Providence, RI, USA; 09/30, 2015. *Invited paper*.
7. Cheonha Jeon, Danielle Harper, Khan Lim, Magali Durand, Michael Chini, Matthieu Baudelet, and Martin Richardson, “Interaction between a Single Water Droplet and a Laser Filament”, 11th Conference on Lasers and Electro-Optics Pacific Rim (CLEO-PR 2015); Busan, South Korea; 08/26, 2015
8. Michael Chini, Shermineh Rostami, Khan Lim, John P. Palastro, Magali Durand, Nathan Bodnar, Benjamin M. Webb, Jean-Claude Diels, Ladan Arissian, Lawrence Shah, Matthieu Baudelet and Martin Richardson, “Supercontinuum Generation and Polarization as Probes of Laser Filamentation Dynamics”, 46th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics; Columbus, OH; 06/11, 2015
9. Shermineh Rostami; Michael Chini; Khan Lim; Magali Durand; Matthieu Baudelet; Martin Richardson; Jean-Claude Diels; Ladan Arissian, “Enhanced Supercontinuum Generation by Polarization Control of Filamentation in Molecular Gases”; CLEO 2015; San Jose, CA; 05/12,2015.
10. Cheonha Jeon; Danielle Harper; Khan Lim; Magali Durand; Michael Chini; Matthieu Baudelet; Martin Richardson “Spatial Dependence of the Interaction between a Single Aerosol and a Laser Filament on its Reformation”; CLEO 2015; San Jose, CA; 05/12,2015.
11. Khan Lim, Magali Durand, Matthieu Baudelet, Martin Richardson “Transition between linear and nonlinear focusing regimes during filamentation”; CLEO 2015; San Jose, CA; 05/12,2015.
12. Matthieu Baudelet, Jessica Chappell, Brandon Seesahai, Martin Richardson, Michael E. Sigman “Quantitative Evaluation of Interferences in Optical Emission Spectroscopy: Towards

Quantitative Line Assignment”; Pittcon 2015; New Orleans, LA; 03/09, 2015.

2014

13. Matthieu Baudelet, “Controlling laser filamentation for better stand-off sensing performances”, seminar at the Center for High Technology Materials, University of New Mexico; Albuquerque, NM; 12/11, 2014. *Seminar*
14. Romain Gaume, R. Locke, M. Chun, M. Baudelet, “Towards Highly-Sensitive Stoichiometric Analysis by Laser-Induced Breakdown Spectroscopy (LIBS)”; 10th Laser Ceramics Symposium; Wroclaw, Poland; 12/04,2014; *Invited presentation*
15. S. Rostami, M. Chini, K. Lim, M. Durand, M. Baudelet, J. M. Diels, M. Richardson, and L. Arissian, "Measurements of the impact of polarization on filaments and the associated supercontinuum," Frontiers in Optics 2014; San Jose, CA; 10/18-22, 2014. *Post-deadline presentation*
16. M. Richardson, M. Durand, M. Baudelet, N. Barbieri, M. Chini, K. Lim, C. Jeon, N. Litchinitser, Z. Kudyshev, S. Will, Z. Roth, and E. Johnson, "Nonlinear Radiation Effects with Filaments - Inside and Outside," Frontiers in Optics 2014; San Jose, CA; 10/18-22, 2014.
17. Benjamin Webb, Joshua Bradford, Khan Lim, Nathan Bodnar, Andreas Vaupel, Erik McKee, Matthieu Baudelet, Magali M Durand, Lawrence Shah, Martin Richardson, “Compact 10 TW laser to generate multi-filament arrays”, Frontiers in Optics 2014; San Jose, CA; 10/18-22, 2014.
18. Baudelet, Matthieu; Gaumé, Romain ; Richardson, Martin; Chun, Matthew; Seesahai, Brandon; Liu, Yuan; Jeon, Cheonha, “Education in plasma spectrochemistry via LIBS for high school and undergraduate students at the Townes Laser Institute”, SciX 2014; Reno, NV; 10/02,2014; *Invited paper*
19. Frederickson, Christopher J; Frederickson, Cathy J; Manton, William I; Rehse, Steve; Jeon, Cheonha; Richardson, Martin; Baudelet, Matthieu, “LIBS Methods for Determination of Elemental Nutritional Status From Fingernails In Situ”, SciX 2014; Reno, NV; 09/30,2014; *Invited paper*
20. Baudelet, Matthieu; Seesahai, Brandon; Liu, Yuan; Jeon, Cheonha; Richardson, Martin; Sigman, Michael; Chappell, Jessica, “Quantitative line assignment in optical emission spectroscopy”, SciX 2014; Reno, NV; 09/29,2014; *Invited paper*
21. Cheonha Jeon, Magali Durand, Matthieu Baudelet, Martin Richardson, “Filament Interaction with Micro-Water Droplets”, CLEO 2014; San Jose, CA; 06/10, 2014.
22. Nicholas Barbieri, Zahra Hosseinimakarem, Khan Lim, Magali Durand, Benjamin Webb, Joshua Bradford, Erik McKee, Nathan Bodnar, Lawrence Shah, Matthieu Baudelet, Eric Johnson, Martin Richardson, “Helical filaments”, CLEO 2014; San Jose, CA; 06/10, 2014.
23. Benjamin Webb; Joshua Bradford; Khan Lim; Nathan Bodnar; Andreas Vaupel; Erik McKee; Matthieu Baudelet; Magali M. Durand; Lawrence Shah; Martin Richardson, “Compact 10 TW laser to generate multi-filament arrays”, CLEO 2014; San Jose, CA; 06/10, 2014.
24. Jessica Chappell, Brandon Seesahai, Yuan Liu, Cheonha Jeon, Martin Richardson, Michael E. Sigman, Matthieu Baudelet, “Quantitative line assignment in optical emission spectroscopy”, Florida Annual Meeting and Exposition 2014; Palm Harbor, FL; 05/10, 2014. *Invited*
25. Matthieu Baudelet, “How Do Lasers Help Solve Crimes”, Optics Day; Orlando, FL; 03/28, 2014. *Invited*

26. Matthieu Baudelet, “How Do Lasers Help Solve Crimes”, Get to know photonics at UCF; Orlando, FL; 03/28, 2014. *Invited*
27. Yuan Liu, Bruno Bousquet, Martin Richardson, Matthieu Baudelet, “Thomson scattering of laser-induced plasma in air”, Winter Conference on Plasma Spectrochemistry; Amelia Island, FL, USA; 01/07, 2014.
28. Yuan Liu, Matthieu Baudelet, Martin Richardson, “Microwave-Assisted LIBS: Beyond Signal Enhancement”, Winter Conference on Plasma Spectrochemistry; Amelia Island, FL, USA; 01/07, 2014. *Poster presentation*
29. Yuan Liu, Cheonha Jeon, Martin Richardson, Matthieu Baudelet, “Quantitative line assignment in optical emission spectroscopy”, Winter Conference on Plasma Spectrochemistry; Amelia Island, FL, USA; 01/07, 2014. *Poster presentation*

2013

30. A.K. Jahromi, M. Chun, M. Baudelet, R. Gaume, “Highly-sensitive Stoichiometric Analysis by Laser-induced Breakdown Spectroscopy (LIBS): A Diagnosis Tool for the Preparation of Advanced Optical Materials”, Materials Science & Technology 2013; Montreal, QC, Canada; 10/29, 2013.
31. Khan Lim; Magali Durand; Vytautas Jukna; Erik McKee; Matthieu Baudelet; Aurélien Houard; Martin Richardson; André Mysyrowicz; Arnaud Couairon, “Blueshifted Continuum Peaks from Filamentation in the Anomalous Dispersion Regime”, Frontiers in optics 2013; Orlando, FL, USA; 10/10, 2013.
32. Erik McKee; Khan Lim; Magali Durand; Ramakrishna Sessa Shankar; Matthieu Baudelet; Tamar Seideman; Martin Richardson, “Filamentation as a diagnostic to measure molecular alignment”, Frontiers in optics 2013; Orlando, FL, USA; 10/09, 2013. *Poster presentation*
33. Yuan Liu; Bruno Bousquet; Martin Richardson; Matthieu Baudelet, “Thomson scattering from aluminum laser plasmas in air”, Frontiers in optics 2013; Orlando, FL, USA; 10/08, 2013.
34. Yuan Liu, Bruno Bousquet, Martin Richardson, Matthieu Baudelet, “Thomson scattering from aluminum laser plasmas in air”, NASLIBS 2013; Milwaukee, WI, USA; 09/29, 2013. *Invited talk*
35. Christopher J. Frederickson, Cathleen Frederickson, David Rusak, Cheonha Jeon, Martin Richardson and Matthieu Baudelet, “Determination of elemental nutritional status in man by LIBS interrogation of in situ tissues”, NASLIBS 2013; Milwaukee, WI, USA; 09/29, 2013. *Invited talk*
36. Yuan Liu, Bruno Bousquet, Martin Richardson, Matthieu Baudelet, “Thomson scattering from aluminum laser plasmas in air: comparison between electronic and excitation temperatures for LTE evaluation”, EMSLIBS 2013; Bari, Italy; 09/16, 2013.
37. A.K. Jahromi, M. Chun, M. Baudelet, R. Gaume, “Highly-Sensitive Stoichiometric Analysis of YAG Ceramics with Laser-Induced Breakdown Spectroscopy (LIBS)”, 19th American Conference on Crystal Growth and Epitaxy (ACCGE-19); Keystone, CO, USA; 07/21, 2013.
38. Yuan Liu, Cheonha Jeon, Martin Richardson, Matthieu Baudelet, “Analyse quantitative par spectroscopie de plasma induit par laser (LIBS): de l’analyse spectrale a l’analyse de traces”, Spectr’Atom 2013; Mont-Tremblant, QC, Canada; 06/27, 2013. *Invited talk*
39. Yuan Liu; Bruno Bousquet; Martin Richardson; Matthieu Baudelet, “Thomson scattering from aluminum laser plasmas in air”, CLEO 2013; San Jose, CA, USA; 06/13, 2013

40. Magali Durand; Khan Lim; Vytautas Jukna; Erik McKee; Matthieu Baudelet; Aurélien Houard; Martin Richardson; André Mysyrowicz; Arnaud Couairon, “Influence of the anomalous dispersion on the supercontinuum generation by femtosecond laser filamentation”; CLEO 2013; San Jose, CA, USA; 06/12,2013
41. Khan Lim; Magali Durand; Xuan Sun; Fabrizio Buccheri; Matthew Weidman; Bruno Bousquet; Matthieu Baudelet; Xi-Cheng Zhang; Martin Richardson, “Broadband THz detection in the counter-propagating configuration using THz-enhanced plasma fluorescence”, CLEO 2013; San Jose, CA, USA; 06/10,2013
42. Lawrence Shah, Tobias Bonhoff, Thomas Ferhat, Ashraf F. El-Sherif, Mark Ramme, Christina C.C. Willis, Matthieu Baudelet, Pankaj Kadwani, Christian Gaida, Martin Gebhart, Ilya Mingareev, Martin Richardson, “Silicon backside machining using a nanosecond 2 um Tm: fiber laser”, SPIE Photonics West; San Francisco, CA, USA; 02/02, 2013
43. Martin Richardson, Matthieu Baudelet, Michael Sigman and Andrzej Miziolek, “Laser Stand-off Sensing Technologies”, Indo-US Workshop on Spectroscopy: Application to National Security; Banaras Hindu University, Varanasi, India; 01/18-20, 2013. *Invited talk*

2012

44. Matthew Weidman, Khan Lim, Nicholas Barbieri, Erik McKee, Magali Durand, Matthieu Baudelet, Martin Richardson, “Quantitative studies of filament interaction with matter for spectroscopic applications”, seminar at GAP Biophotonics group, University of Geneva; Geneva, Switzerland; 11/30, 2012. *Seminar*
45. Yuan Liu, Matthew Weidman, Christopher Brown, Corey Butler, Marie Vangheluwe, Shima Fardad, Andreas Knebl, Lionel Gigant, Martin Richardson, Matthieu Baudelet, “New Perspectives in Laser Spectroscopy as a Science for Sensing, Monitoring and Diagnostics”, seminar at Center of Excellence “Laser & Photonique en Aquitaine”, University of Bordeaux; Bordeaux, France; 11/13, 2012. *Seminar*
46. Martin Richardson, Matthieu Baudelet, Michael Sigman and Andrzej Miziolek, “Stand-off chemical and biological sensing”, Frontiers in Optics 2012, Laser Science XXVIII; Rochester, NY, USA; 10/14-18, 2012; *Invited talk*
47. K. Lim, R. S. Shankar, M. Baudelet, T. Seideman, M. Richardson, “Molecular Studies of filamentation in carbon dioxide”, COFIL 2012; Tucson, AZ, USA; 10/12, 2012. *Poster presentation*
48. K. Lim, B. Bousquet, M. Weidman, M. Baudelet, M. Richardson, “Broadband terahertz detection with laser-induced air plasma in counter-propagating scheme”, COFIL 2012; Tucson, AZ, USA; 10/11, 2012. *Poster presentation*
49. N. Barbieri, M. Weidman, M. Baudelet, Z. Roth, E. Johnson, G. Siviloglou, D. Christodoulides, M. Richardson, “Helical plasma filaments”, COFIL 2012; Tucson, AZ, USA; 10/08, 2012. *Poster presentation*
50. N. Barbieri, M. Weidman, K. Lim, M. Baudelet, R. Bernath, M. Richardson, “RF emission from filament-matter interaction”, COFIL 2012; Tucson, AZ, USA; 10/08, 2012. *Poster presentation*
51. M. Weidman, K. Lim, M. Ramme, M. Baudelet, A. Valenzuela, C. Munson, M. Richardson, “Quantitative characterization of ablative filament matter interaction”, COFIL 2012; Tucson, AZ, USA; 10/08, 2012. *Poster presentation*
52. Martin Richardson, Jean-Claude Diels, Alejandro Aceves, Ladan Arissian, Matthieu Baudelet,

- Eric Johnson, Zenghu Chang, Natalia Litchinitser, Tamar Seideman, Xie-Cheng Zhang, Richard Hammond, “The ARO MURI Program on Air Filamentation Science”, COFIL 2012; Tucson, AZ, USA; 10/08, 2012. *Invited talk*
53. Martin Richardson, Matthieu Baudelet, Michael Sigman and Andrzej Miziolek, “Stand-off LIBS – The status today and the future”, LIBS 2012; Luxor, Egypt; 09/29 – 10/04, 2012; *Invited talk*
54. Yuan Liu, Matthieu Baudelet, Martin Richardson, “Microwave-assisted LIBS: Signal enhancement and beyond”, SciX 2012; Kansas City, MO, USA; 10/02, 2012. *Invited talk*
55. Matthieu Baudelet, “Fifty years of LIBS and no limits for analysis”, SciX 2012; Kansas City, MO, USA; 10/02, 2012. *Invited talk*
56. Martin Richardson, Jean-Claude Diels, Alejandro Aceves, Ladan Arissian, Matthieu Baudelet, Eric Johnson, Zenghu Chang, Natalia Litchinitser, Tamar Seideman, Xie-Cheng Zhang, Richard Hammond, “The ARO MURI Program on Air Filamentation Science After One Year”, 10th annual ultrashort pulse laser workshop, Directed Energy Professional Society; Broomfield, CO, USA; 06/12, 2012. *Invited talk*
57. Yuan Liu, Matthieu Baudelet, Martin Richardson, “Laser-Induced Breakdown Spectroscopy for Moisture Monitoring in Food”; Pittcon 2012, Orlando, FL, USA; 03/11, 2012
58. Corey Butler, Shima Fardad, Alex Sincore, Matthieu Baudelet, Martin Richardson “Multispectral optical tweezers for molecular diagnostics of single biological cells”; Pittcon 2012, Orlando, FL, USA; 03/12, 2012.
59. Yuan Liu, Mark Koehler, Matthieu Baudelet, Martin Richardson, “Fusion of infrared and Raman spectroscopy for carotenoid analysis”; Pittcon 2012, Orlando, FL, USA; 03/11, 2012.
60. Corey Butler, Shima Fardad, Alex Sincore, Marie Vangheluwe, Matthieu Baudelet, Martin Richardson, “Multispectral optical tweezers for molecular diagnostics of single biological cells”; SPIE Photonics West; San Francisco, CA, USA; 01/21, 2012. *Invited talk*
61. Yuan Liu, Matthieu Baudelet, Martin Richardson, “Advanced LIBS Methodology for Food and Environment Monitoring”; 2012 Winter Conference on Plasma Spectrochemistry; Tucson, AZ, USA; 01/10, 2012. *Poster presentation*
62. Cheonha Jeon, Matthieu Baudelet, Martin Richardson, “Fundamental Time-Resolved Mass Spectrometry of Laser-Induced Plasmas for Organic Analysis”; 2012 Winter Conference on Plasma Spectrochemistry; Tucson, AZ, USA; 01/10, 2012.

2011

63. Matthieu Baudelet, Michael Sigman, Martin Richardson, “Laser-induced breakdown spectroscopy in complex situations”; FACSS 2011; Reno, NV, USA; 10/06, 2011. *Invited talk*
64. Yuan Liu, Matthieu Baudelet, Martin Richardson, Richard Russo “Advanced LIBS Methodologies for Food and Environment Monitoring”; Euro-Mediterranean Symposium on Laser-Induced Breakdown Spectroscopy 2011; Izmir, Turkey; 09/13, 2011
65. Matthieu Baudelet, Martin Richardson, Michael Sigman, “Laser spectroscopy and sensing at the Townes Laser Institute”; ATLANTIS-MILMI Summer School; Orlando, FL, USA; 07/21, 2011. *Invited talk*
66. Yuan Liu, Lionel Gigant, Matthieu Baudelet, Martin Richardson, “Combination of LIBS and Raman for Food Quality Monitoring”; North-American Symposium on Laser-Induced Breakdown Spectroscopy 2011; Clearwater, FL, USA; 07/20, 2011.

67. Yuan Liu, Matthieu Baudelet, Martin Richardson, "Laser Material Analysis using Calibration Free Laser-Induced Breakdown Spectroscopy"; North-American Symposium on Laser-Induced Breakdown Spectroscopy 2011; Clearwater, FL, USA; 07/19, 2011. *Poster presentation*
68. Matthew Weidman, Matthieu Baudelet, Martin Richardson, "Time-Resolved Goniometric Measurement of the Filament-Induced Plasma Emission for Stand-Off LIBS Applications"; North-American Symposium on Laser-Induced Breakdown Spectroscopy 2011; Clearwater, FL, USA; 07/19, 2011. *Poster presentation*
69. Santiago Palanco, Jose Ramos-Barrado, Matthew Weidman, Matthieu Baudelet, Martin Richardson, "Correlation Between Spectral Emission and Nanoparticle Generation During Nano- and Femtosecond Laser-induced Breakdown"; North-American Symposium on Laser-Induced Breakdown Spectroscopy 2011; Clearwater, FL, USA; 07/18, 2011.
70. Caitlin Rinke, Chistopher Brown, Martin Richardson, Matthieu Baudelet, Michael Sigman, "LIBS signature recognition of trace materials in complex background environments"; North-American Symposium on Laser-Induced Breakdown Spectroscopy 2011; Clearwater, FL, USA; 07/18, 2011. *Invited talk*
71. Martin Richardson, Matthieu Baudelet, Demetrios Christodoulides, Robert Bernath, Matthew Fisher, Nicholas Barbieri, Matthew Weidman, Eric Johnson, Zachary Roth, "Engineered filaments"; 9th annual ultrashort pulse laser workshop, Directed Energy Professional Society; Santa Fe, NM, USA; 06/09, 2011.
72. Nicholas Barbieri, Matthew Weidman, Khan Lim, Gregory Katona, Matthieu Baudelet, Robert Bernath, Jason Aspiotis, Martin Richardson, "RF emission from filament induced laser plasmas"; 9th annual ultrashort pulse laser workshop, Directed Energy Professional Society; Santa Fe, NM, USA; 06/09, 2011.
73. Yuan Liu, Lionel Gigant, Matthieu Baudelet, Martin C. Richardson, "Combination of LIBS and Raman for food quality monitoring"; SPIE Defense, Security, Sensing; Orlando, FL, USA; 04/26, 2011.
74. Khan Lim, Jason M. Eichenholz, Matthieu Baudelet, Martin C. Richardson, "Far-UV LIBS for biological and organic samples"; SPIE Defense, Security, Sensing; Orlando, FL, USA; 04/25, 2011.
75. Khan Lim, Yuan Liu, Matthieu Baudelet, Evgueni Slobodtchikov, Peter Moulton, Andrzej W. Miziolek, Martin C. Richardson, "New generation of compact femtosecond system for laser-based detection and identification of biological materials"; SPIE Defense, Security, Sensing; Orlando, FL, USA; 04/25, 2011.
76. Nicholas Barbieri, Matthew Weidman, Matthieu Baudelet, Martin C. Richardson, Demetrios Christodoulides, Georgios Siviloglou, "Helical ionizing channels generated with ultrafast interfering Bessel laser pulses"; Photonics West; San Francisco, CA, USA; 01/26, 2011.

2010

77. Matthew Weidman, Matthieu Baudelet, Christina C. C. Willis, Lawrence Shah, Martin C. Richardson, "Novel laser sources for LIBS: From fiber lasers, self-channeled laser to dual pulse configuration,"; Pacificchem 2010; Honolulu, HI, USA; 12/18, 2010.
78. Yuan Liu, Matthieu Baudelet, Martin C. Richardson, "Microwave-assisted LIBS: Extending the laser induced plasma lifetime for trace detection" Pacificchem 2010; Honolulu, HI, USA; 12/18, 2010. *Poster presentation*

79. Matthew Weidman, Matthieu Baudelet, Martin C. Richardson, Paul J Dagdigian, "Spatial and temporal spectral imaging of self-channeled laser-induced breakdown spectroscopy on carbon-based samples: Molecular chemistry in air"; Pacificchem 2010; Honolulu, HI, USA; 12/18, 2010. *Poster presentation*
80. Martin Richardson, Michael Sigman, Matthieu Baudelet, "Standoff Detection of Trace Radio-Nuclides using New Laser Spectroscopy Techniques"; NNSA, University and Industry Technical Interchange (UITI2010) Review Meeting; Knoxville, TN, USA; 12/08, 2010
81. Matthew Weidman, Matthew Fisher, Khan Lim, Christopher Brown, Caitlin Rinke, Matthieu Baudelet, Michael Sigman, Martin Richardson, "Advanced LIBS Modalities for Stand-Off Detection of Explosive and Biological Threats"; 27th Army Science Conference; Orlando, FL, USA; 11/30, 2010.
82. Caitlin Rinke, Christopher G. Brown, Matthieu Baudelet, Martin C. Richardson, Michael Sigman, "A New Paradigm for Substrate Independent Discrimination of Organic and Explosive Materials by Target Factor Analysis of Molecular Optical Signatures"; 2010 Chemical and Biological Defense Science and Technology Conference; Orlando, FL, USA; 11/16, 2010. *Poster Presentation*
83. Yuan Liu, Matthieu Baudelet, Martin C. Richardson, "Compact Laser-based Spectroscopic Systems for Biological Analysis"; 2010 Chemical and Biological Defense Science and Technology Conference; Orlando, FL, USA; 11/16, 2010. *Poster Presentation*
84. Matthew Weidman, Matthieu Baudelet, Martin C. Richardson, "Stand-off Laser Sensing for Chemical and Biological Traces Detection"; 2010 Chemical and Biological Defense Science and Technology Conference; Orlando, FL, USA; 11/16, 2010. *Poster Presentation*
85. Danielle Simmons, Nathan Bodnar, Matthieu Baudelet, Martin Richardson, "Fourier Transform Infrared Spectroscopy"; Symposium on undergraduate research, Division of Laser Science of A.P.S - LS XXVI; Rochester, NY, USA; 10/25, 2010. *Poster Presentation*
86. Khan Lim, Matthieu Baudelet, Jason Eichenholz, Martin C. Richardson, "Far-UV LIBS for Biological and Organic Samples"; 6th International Conference on Laser-Induced Breakdown Spectroscopy; Memphis, TN, USA; 09/16, 2010.
87. Yuan Liu, Matthieu Baudelet, Martin C. Richardson, "Elemental Analysis on Ceramic and Soil Samples Using Microwave-Assisted Laser-Induced Breakdown Spectroscopy"; 6th International Conference on Laser-Induced Breakdown Spectroscopy; Memphis, TN, USA; 09/16, 2010. *Poster Presentation*
88. Matthew Weidman, Matthieu Baudelet, Paul J Dagdigian, Martin C. Richardson, "Temporally and Spatially Resolved Filament Induced Breakdown Spectroscopy of Carbon Based Samples"; 6th International Conference on Laser-Induced Breakdown Spectroscopy; Memphis, TN, USA; 09/15, 2010. *Poster Presentation*
89. Khan Lim, Yuan Liu, Matthieu Baudelet, Evgueni Slobodtchikov, Peter Moulton, A Miziolek, Martin C. Richardson, "LIBS of Biological Materials with a Compact Femtosecond System"; 6th International Conference on Laser-Induced Breakdown Spectroscopy; Memphis, TN, USA; 09/15, 2010. *Poster Presentation*
90. Yuan Liu, Matthieu Baudelet, Paul J Dagdigian, Martin C. Richardson, "Molecular Emission Enhancement from Microwave-Assisted Laser-Induced Breakdown Spectroscopy"; 6th International Conference on Laser-Induced Breakdown Spectroscopy; Memphis, TN, USA; 09/15, 2010. *Poster Presentation*

91. Christopher G. Brown, Reuvani Devi Kamtaprasad, Matthieu Baudelet, Michael Sigman, Martin C. Richardson, "Stoichiometric Study of Organic Mass Limited Droplets"; 6th International Conference on Laser-Induced Breakdown Spectroscopy; Memphis, TN, USA; 09/15, 2010. *Poster Presentation*
92. Martin C. Richardson, Matthieu Baudelet, Michael Sigman, "Fundamental Considerations for an Efficient Application of LIBS in Forensics and Security"; 6th International Conference on Laser-Induced Breakdown Spectroscopy; Memphis, TN, USA; 09/14, 2010. *Invited paper*
93. Qianli Ma, Vincent Motto-Ros, Wenqi Lei, Myriam Boueri, Matthieu Baudelet, Heping Zeng, Jin Yu, "Morphologie et évolution du plasma induit par laser dans un gaz ambiant"; Colloque commun de la division de Physique Atomique et Moléculaire et Optique de la SFP et des Journées de Spectroscopie Moléculaire; Orsay, France; 07/02, 2010.
94. Martin Richardson, Nicholas Barbieri, Matthew Weidman, Robert Bernath, Matthew Fisher, Matthieu Baudelet, Demetrios Christodoulides, Eric Johnson, Menelaos Poutous, and Zachary Roth, "Multi-structured air filamentation and interaction investigations"; DEPS Ultrashort Pulse Laser Workshop; Monterey, CA, USA; 06/13, 2010
95. Martin Richardson, Nicholas Barbieri, Matthew Weidman, Robert Bernath, Matthew Fisher, Matthieu Baudelet, Demetrios Christodoulides, Eric Johnson, Menelaos Poutous, and Zachary Roth, "Multi-structured air filamentation and interaction investigations"; 3rd International Symposium on Filamentation, (COFIL 2010); Aghia Pelaghia, Crete, Greece; 05/31. *Invited Talk*.
96. Robert A. Sims, Timothy S. McComb, Christina C.C. Willis, Pankaj Kadwani, Matthieu Baudelet Lawrence Shah, Martin C. Richardson, Dennis Killinger, Dzianis Pliutau, "Atmospheric Transmission Testing using a Portable, Tunable, High Power, Thulium Fiber Laser System"; Conference on Lasers and Electro-Optics; San Jose, CA, USA; 05/20, 2010.
97. Matthew Weidman, Matthieu Baudelet, Michael Sigman, Martin C. Richardson, "Nd:YAG-CO2 double-pulse laser-induced breakdown spectroscopy for explosive residues detection"; SPIE Defense, Security, Sensing; Orlando, FL, USA; 04/07, 2010.
98. Matthew Weidman, Matthieu Baudelet, Paul J Dagdigian, Michael Sigman, Martin C. Richardson, "Self-channeled laser-induced breakdown spectroscopy for detection of organic compounds in atmosphere via their molecular signature"; SPIE Defense, Security, Sensing; Orlando, FL, USA; 04/07, 2010.
99. Yuan Liu, Matthieu Baudelet, Martin C. Richardson, "Microwave-assisted laser-induced breakdown spectroscopy for trace detection in soil and food"; SPIE Defense, Security, Sensing; Orlando, FL, USA; 04/06, 2010.
100. Matthieu Baudelet, Christina C. C. Willis, Lawrence Shah, Martin Richardson, "Mid-IR Tm-fiber laser for laser-induced plasma spectroscopy of organic and biological materials"; SPIE Defense, Security, Sensing; Orlando, FL, USA; 04/05, 2010.
101. Martin Richardson, Lawrence Shah, Matthieu Baudelet, Demetrios Christodoulides, John Stryjewski, "New laser and long range optical technologies"; National Consortium for MASINT Research (NCOMR) Spring Technical Review; Maui, HI, USA; 03/30, 2010
102. Yuan Liu, Matthieu Baudelet, Martin C. Richardson, "Trace Detection in Ceramics, Organic and Biological Samples by Microwave-assisted Laser-induced Plasma Spectroscopy"; 2010 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy; Orlando, FL, USA; 03/04, 2010.
103. Matthieu Baudelet, Christina C. Willis, Pankaj Kadwani, Lawrence Shah, Martin C. Richardson,

"Laser-induced Breakdown Spectroscopy of Organic Materials with a Mid-IR Thulium-fiber-laser Nanosecond Pulse at 2 μm "; 2010 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy; Orlando, FL, USA; 03/04, 2010. *Poster presentation*

104. Caitlin Rinke, Christopher G. Brown, Douglas Clark, Matthieu Baudelet, Martin C. Richardson, Michael Sigman, "Substrate Independent Discrimination of Organic and Explosive Materials Via Target Factor Analysis of Their Molecular Optical Signature"; 2010 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy; Orlando, FL, USA; 03/04, 2010. *Poster presentation*
105. Matthew Weidman, Matthieu Baudelet, Michael Sigman, Paul J Dagdigian, Martin C. Richardson, "Nd:YAG-CO₂ Double-Pulse Laser Induced Breakdown Spectroscopy for Explosive Detection"; OSA Laser Application to Chemical Security and Environmental Analysis; San Diego, CA, USA; 02/03, 2010.
106. Matthieu Baudelet, Yuan Liu, Martin C. Richardson, "Microwave-Assisted LIBS: Towards a New Tool for Trace Element Detection and Molecular Plasma Spectrochemistry"; OSA Laser Application to Chemical Security and Environmental Analysis; San Diego, CA, USA; 02/03, 2010.
107. Matthieu Baudelet, Christina C. C. Willis, Lawrence Shah, Martin C. Richardson,, "Tm-Fiber 2 μm Laser for Laser-Induced Plasma Spectroscopy of Organic and Biological Materials"; OSA Laser Application to Chemical Security and Environmental Analysis; San Diego, CA, USA; 02/03, 2010.
108. Christina C. C. Willis, Robert A. Sims, Lawrence Shah, Matthieu Baudelet Timothy S. McComb, Vikas Sudesh, Martin C. Richardson, "High-energy Q-switched Tm³⁺-doped polarization maintaining silica fiber laser", SPIE Photonics West; San Francisco, CA, USA; 01/25, 2010.
109. Matthieu Baudelet, Yuan Liu, Martin Richardson, "Trace Detection in Ceramics, Organics, and Biological Samples by Microwave-Assisted Laser-Induced Breakdown Spectrometry"; 2010 Winter Conference on Plasma Spectrochemistry; Fort Myers, FL, USA; 01/05, 2010.
110. Matthieu Baudelet, Yuan Liu, Paul J. Dagdigian, Martin Richardson, "Molecular Emission Enhancement From Microwave-Assisted Laser-Induced Breakdown Spectroscopy on Alumina"; 2010 Winter Conference on Plasma Spectrochemistry; Fort Myers, FL, USA; 01/05, 2010. *Poster presentation*.
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125. Jin Yu, Matthieu Baudelet, Myriam Boueri, "Laser ablation of organic and biological materials

for discrimination of bacteria and detection of trace elements in vegetables”; SPIE Photonics West; San Jose, CA, USA; 01/26, 2009. *Invited presentation.*

126. Christopher G. Brown, Matthieu Baudelet, Candice Bridge, Matthew Fisher, Michael Sigman, Martin Richardson, Paul J Dagdigian, "Femtosecond LIBS: a better regime to analyze organic samples”; Southeast Ultrafast Conference; Orlando, FL, USA; 01/16, 2009. *Poster presentation.*
127. Matthieu Baudelet, Matthew Weidman, Matthew Fisher, Candice Bridge, Christopher G. Brown, Michael Sigman, Martin C. Richardson, Paul J Dagdigian, "Filament-Induced Breakdown Spectroscopy on Organic Thin Films: Towards an Efficient Detection of Energetic Materials”; Southeast Ultrafast Conference; Orlando, FL, USA; 01/16, 2009. *Poster presentation.*

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129. James Martin, Matthew Weidman, Christopher Brown, Candice Bridge, Matthieu Baudelet, Martin Richardson, “Light Detection for Laser Induced Breakdown Spectroscopy”; Symposium on undergraduate research, Division of Laser Science of A.P.S; Rochester, NY, USA; 10/28, 2008. *Poster presentation.*
130. James Martin, Matthew Weidman, Matthieu Baudelet, Matthew Fisher, Martin C. Richardson, Paul J. Dagdigian, "Towards an efficient remote LIBS detection of organic materials"; 5th International Conference on Laser-Induced Breakdown Spectroscopy; Berlin, Germany; 09/25, 2008. *Poster presentation.*
131. Myriam Boueri, Matthieu Baudelet, Jin Yu, Xianglei Mao, Samuel S. Mao, Rick E. Russo, “Early stage expansion of laser plasma from organic materials: A comparison between nanosecond and femtosecond ablation”; 5th International Conference on Laser-Induced Breakdown Spectroscopy; Berlin, Germany; 09/25, 2008. *Poster presentation.*
132. Christopher G. Brown, Candice Bridge, Matthew Fisher, Matthieu Baudelet, Michael Sigman, Martin Richardson, Paul J Dagdigian, "Comparison of nanosecond and femtosecond Laser Regimes for LIBS Analysis of Organic Thin Films”; 5th International Conference on Laser-Induced Breakdown Spectroscopy; Berlin, Germany; 09/24, 2008. *Poster presentation.*
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134. Sidahmed Beldjilali, François Brygo, Jörg Hermann, Myriam Boueri, Matthieu Baudelet, Jin Yu, “Analysis of potatoes by laser-induced breakdown spectroscopy”; 5th International Conference on Laser-Induced Breakdown Spectroscopy; Berlin, Germany; 09/24, 2008. *Poster presentation.*
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"Early stage expansion and time-resolved spectral emission of laser-induced plasma from polymer"; Sixth International Conference on Photo-Excited Processes and Applications (6-ICPEPA); Sapporo, Japan; 09/9-12, 2008. *Invited presentation.*

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141. Jin Yu, Matthieu Baudelet, Laurent Guyon, Myriam Boueri, Jean-Pierre Wolf, Tanguy Amodeo, Emeric Fréjafon, Patrick Laloi, "Detection and analysis of organic and biological materials with LIBS"; Second France-China Workshop on Intense Lasers and Applications (FCILA-2007); Lyon, France; 06/05, 2007.

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143. Jin Yu, Matthieu Baudelet, Laurent Guyon, Tanguy Amodeo, Emeric Fréjafon, Patrick Laloi, Jean-Pierre Wolf, "Detection and Discrimination of Bacteria with Femtosecond Laser-Induced Breakdown Spectroscopy", LIBS 2006; Montreal, QC, Canada; 09/04, 2006
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