

142 articles using products of DRS Daylight Solutions

Nr.	Article	Authors	Journal	Application	Product	Published
1	Analytical performance of μ-groove silicon attenuated total reflection waveguides	Julian Haas, Anja Müller, Lorenz Sykorab and Boris Mizaikoff	Analyst, 2019,144,3398 Royal Society of Chemistry	Biomedical, Liquid and Solid State Spectroscopy	MIRcat	2019
2	Infrared spectroscopy based on broadly tunable quantum cascade lasers and poly-crystalline diamond waveguides	Julian Haas, Ernesto Vargas Catalán, Pierre Piron, Mikael Karlsson and Boris Mizaikoff	Analyst, 2018, 143, 5112, Royal Society of Chemistry	Biomedical, Liquid and Solid State Spectroscopy	MIRcat	2018
3	Imaging-based molecular barcoding with pixelated dielectric metasurfaces	Andreas Tittl, Aleksandrs Leitis, Mingkai Liu, Filiz Yesilkoy, Duk-Yong Choi, Dragomir N. Neshev, Yuri S. Kivshar, Hatice Altug,*	Science 08 Jun 2018: Vol. 360, Issue 6393, pp. 1105-1109 DOI: 10.1126/science.aas9768	Meta-Surfaces for molecular detection	Spero	2018

4	Quantum Cascade Laser-Based Infrared Microscopy for Label-Free and Automated Cancer Classification in Tissue Sections	Claus Kuepper, Angela Kallenbach-Thieltges, Hendrik Juette, Andrea Tannappel, Frederik Großerueschkamp & Klaus Gerwert	Scientific Reports volume 8, Article number: 7717 (2018) doi:10.1038/s41598-018-26098-w	Tissue Analysis Imaging Cancer Research	Spero QT	2018
5	High definition infrared chemical imaging of colorectal tissue using a Spero QCL microscope	Lisa V. Brown, Marcelo Davanco, Zhiyuan Sun, Andrey Kretinin, Yiguo Chen, Joseph R. Matson, Igor Vurgaftman, Nicholas Sharac, Alexander J. Giles, Michael M. Fogler, Takashi Taniguchi, Kenji Watanabe, Kostya S. Novoselov, Stefan A. Maier, Andrea Centrone, and	Nano Letters/ DOI: 10.1021/acs.nanolett.7b04476	Tissue Analysis, Chemical Imaging, Biomedical	Spero	2018

		Joshua D. Caldwell				
6	Nanoscale Mapping and Spectroscopy of Nonradiative Hyperbolic Modes in Hexagonal Boron Nitride Nanostructures	Lisa V. Brown, Marcelo Davanco, Zhiyuan Sun, Andrey Kretinin, Yiguo Chen, Joseph R. Matson, Igor Vurgaftman, Nicholas Sharac, Alexander J. Giles, Michael M. Fogler, Takashi Taniguchi, Kenji Watanabe, Kostya S. Novoselov, Stefan A. Maier, Andrea Centrone, and Joshua D. Caldwell	Nano Letters/ DOI: 10.1021/acs.nanolett.7b04476	Nanoscale	MIRcat, Hedgehog	2018
7	Nanostructured Lipid-Based Films for Substrate-Mediated Applications in Biotechnology	Minjee Kang, Mohit Tuteja, Andrea Centrone, Daniel Topgaard, and Cecilia Leal	Advanced Functional Materials/ DOI: 10.1002/adfm.201704356	Nanoscale	MIRcat	2018

8	Predicting Fibrosis Progression in Renal Transplant Recipients Using Laser-Based Infrared Spectroscopic Imaging	Vishal K. Varma, Andre Kajdacsy-Balla, Sanjeev Akkina, Suman Setty, Michael J. Walsh	Scientific Reports/ DOI: :10.1038/s41598-017-19006-1	Tissue Analysis	Spero	2018
9	The harmonic state of quantum cascade lasers: origin, control, and prospective applications	Marco Piccardo, Paul Chevalier, Tobias S. Mansuripur, Dmitry Kazakov, Yongrui Wang, Noah A. Rubin, Lauren Meadowcroft, Alexey Belyanin, and Federico Capasso	Optics Express/ DOI: 10.1364/OE.26.009464	Frequency Combs	Hedgehog, MIRcat	2018
10	3D Chemical Imaging of the Brain by Quantitative IR Spectro-Microscopy	Abiodun Ogunleke, Benoit Recur, Hugo Balacey, Hsiang-Hsin Chen, Maylis Delugin, Yeukuang Hwu, Sophie Javerzat, Cyril Petibois	Royal Society of Chemistry/ DOI: 10.1039/C7SC03306K	Chemical Imaging, Cancer Research	Spero	2017

11	3D Quantitative Chemical Imaging of Tissues by Spectromics	Cyril Petibois	Trends in Biotechnology/ DOI: 10.1016/j.tibtech.2017.08.002	Chemical Imaging, Cancer Research	Spero	2017
12	Absolute spectroscopy near 7.8 μm with a comb-locked extended-cavity quantum-cascade-laser	Marco Lamperti, Bidoor AlSaif, Davide Gatti, Martin Fermann, Paolo Laporta, Aamir Farooq, and Marco Marangoni	Optical Society of America/ DOI: 10.1364/OL.99.099999	Frequency Combs	MIRcat, Hedgehog	2017
13	Fourier-transform vs. quantum-cascade-laser infrared microscopes for histo-pathology: From lab to hospital?	Abiodun Ogunleke, Vladimir Bobroff, Hsiang-Hsin Chen, Jeremy Rowlette, Maylis Delugin, Benoit Recur, Yeukuang Hwu, Cyril Petibois	Analytical Chemistry/ DOI: 10.1016/j.trac.2017.02.007	Tissue Analysis, Chemical Imaging, Biomedical	Spero	2017
14	Quantitative Chemical Analysis at the Nanoscale Using the Photothermal Induced Resonance Technique	Georg Ramer, Vladimir A. Aksyuk, and Andrea Centrone	Analytical Chemistry/ DOI: 10.1021/acs.analchem.7b03878	Nanoscale	MIRcat	2017

15	Tests of a two-color interferometer and polarimeter for ITER density measurements	M A Van Zeeland, T N Carlstrom, D K Finkenthal, R L Boivin, A Colio, D Du, A Gattuso, F Glass, C M Muscatello, R O'Neill, M Smiley, J Vasquez, M Watkins, D L Brower, J Chen, W X Ding, D Johnson, P Mauzey, M Perry, C Watts, R Wood	Plasma Physics and Controlled Fusion/ DOI: 10.1088/1361-6587/aa8c49	Plasma	Unicorn II	2017
16	Mid-infrared thin-film diamond waveguides combined with tunable quantum cascade lasers for analyzing the secondary structure of proteins	Angela I. Lopez-Lorente, Pei Wang, Markus Sieger, Ernesto Vargas Catalan, Mikael Karlsson Fredrik Nikolajeff, Lars Osterlund, and Boris Mizaikoff	Phys. Status Solidi A 213, No. 8, 2117–2123 (2016) / DOI 10.1002/pssa.201600134	Biomedical, Microfluidics	EC-QCL	2016

17	A protocol for rapid, label-free histochemical imaging of fibrotic liver	B. Bird and J. Rowlette	Royal Chemistry Society/ DOI: 10.1039/c6an02080a	Tissue Analysis, Chemical Imaging, Biomedical	Spero	2016
18	Characterization and control of a tunable quantum cascade laser beam parameters for stand-off spectroscopy	Furstemberg, R., Kenziora, C. A., Papantonakis, M., Nguyen, V., McGill, R. A	Proc. Of SPIE Vol. 9824 DOI 10.1117/12.2224003	Standoff Detection	MIRcat	2016
19	High-throughput Quantum Cascade Laser (QCL) spectral histopathology: a practical approach towards clinical translation	Michael. J. Pilling, Alex Henderson, Benjamin Bird, Mick D. Brown, Noel W. Clarke, Peter Gardner	Royal Chemistry Society/ DOI: 10.1039/C5FD00176E	Tissue Analysis, Chemical Imaging, Biomedical	Spero	2016

20	Imaging of Anomalous Internal Reflections of Hyperbolic Phonon-Polaritons in Hexagonal Boron Nitride	Alexander J. Giles, Siyuan Dai, Orest J. Glembocki, Andrey V. Kretinin, Zhiyuan Sun, Chase T. Ellis, Joseph G. Tischler, Takashi Taniguchi, Kenji Watanabe, Michael M. Fogler, Kostya S. Novoselov, Dimitri N. Basov, Joshua D. Caldwell	Nano Lett. DOI: 10.1021/acs.nanolett.6b01341	Nanoscale	MIRcat	2016
21	Infrared spectroscopic imaging detects chemical modifications in liver fibrosis due to diabetes and disease	Hari Sreedhar, Vishal K. Varma, Francesca V. Gambacorta, Grace Guzman, Michael J. Walsh	Biomedical Optics Express DOI: 10.1364/BOE 7.002419	Biomedical	Spero	2016
19	Low-threshold terahertz molecular laser optically pumped by a quantum cascade laser	A. Pagies, G. Ducournau, J. F. Lampin	Apl Photonics DOI 10.1063/1.4945355	Standoff Detection	MIRcat	2016

20	Microfluidic cantilever detects bacteria and measures their susceptibility to antibiotics in small confined volumes	Hashem Etayash, M. F. Khan, Kamaljit Kaur, Thomas Thundat	Nature Communications/ DOI: 10.1038/ncomms12947	Biomedical, Microfluidics	MIRcat	2016
21	Mid-IR laser-based sensor for hydrogen peroxide detection	Nancy P. Sanchez, Yajun Yu, Lei Dong, Robert J. Griffin, and Frank K. Tittel	SPIE Newsroom DOI: 10.1117/2.1201601.006295	Environmental Monitoring	EC-QCL, Hedgehog	2016
22	Nanoscale chemical imaging by photoinduced forced microscopy	Derek Nowak, William Morrison, H. Kumar Wickramasinghe, Junghoon Jahng, Eric Potma, Lei Wan, Ricardo Ruiz, Thomas R. Albrecht, Kristin Schmidt, Jane Frommer, Daniel P. Sanders, Sung Park	Sci. Adv. 2, e1501571	Nanoscale		2016

23	Reversible optical switching of highly confined phonon-polaritons with an ultrathin phase-change material	Peining Li, Xiaosheng Yang, Tobias W. W. Maß, Julian Hanss, Martin Lewin, Ann-Katrin U. Michel, Matthias Wutting, Thomas Taubner	Nature Materials DOI: 10.1038/NMAT4649	Nanoscale	MIRcat	2016
24	Site-Specific Dynamics of β-Sheet Peptides and DPro-Gly Turns Probed by Laser-Excited Temperature-Jump Infrared Spectroscopy	Alexander Popp, David Scheerer, Heng Chi, Timothy A. Keiderling, Karin Hauser	Chem Phys Chem DOI: 10.1002/cphc.201501089	Biomedical, Time Resolve	Hedgehog	2016
25	Ultrasonic photoacoustic spectroscopy of trace hazardous chemicals using quantum cascade laser	Deepak Kumar, Devinder Pal Ghai, R.K. Soni	Optics Communications Vol. 381, Pages 271-276	Standoff Detection		2016

26	Vibrational mid-infrared photothermal spectroscopy using a fiber laser probe: asymptotic limit in signal-to-baseline contrast	Atcha Totachawattana, Hui Liu, Alket Mertiri, Mi K. Hong, Shyamsunder Erramilli, Michelle Y. Sander	Optics Letters Vol. 41, No. 1	Biomedical	EC-QCL, Hedgehog, Pulsed Tunable Laser	2016
27	Concept and setup for intraoperative imaging of tumorous tissue via Attenuated Total Reflection spectroscopy with Quantum Cascade Lasers	Florian B. Geiger, Martin Koerdel, Anton Schick, Axel Heimann, Kaspar Matiasek, Alois M. Herkommer	Proc SPIE vol. 9412	Biomedical, Cancer Research, Tissue Analysis	EC-QCL, Hedgehog, MIRcat	2015
28	Development of nanosecond time-resolved infrared detection at the LEAF pulse radiolysis facility	David C. Grills, Jaime A. Farrington, Bobby H. Layne, Jack M. Preses, Herbert J. Bernstein, James F. Wishart	Review of Scientific Instruments 86, 044102	Time Resolved	EC-QCL, Hedgehog	2015

29	External-Cavity Quantum Cascade Laser Spectroscopy for Mid-IR Transission Measurements of Proteins in Aqueous Solution	Mirta R. Alcaraz, Andreas Schwaighofer, Christian Kristament, Georg Ramer, Markus Brandstetter, Hector Goicoechea, Bernhard Lendl	Anal Chem DOI:10.1021/acs/analchem.5b01738	Biomedical	EC-QCL, Hedgehog	2015
30	Hyperbolic phonon-polaritons in boron nitride for near-field optical imaging and focusing	Peining Li, Martin Lewin, Andrey V. Kretinin, Joshua D. Caldwell, Kostya S. Novoselov, Takashi Taniguchi, Kenji Watanabe, Fabian Gaussmann, Thomas Taubner	Nature Communications/ DOI: 10.1038/ncomms8507	Nanoscale	EC-QCL, Hedgehog	2015
31	Infrared planar laser-induced fluorescence with a CW quantum-cascade laser for spatially resolved CO2 and gas properties	Goldenstein, C. S., Miller, V. A, Hanson, R. K.	Appl. Phys. B DOI 10.1007/s00340-015-6167-0	Environmental Monitoring	MHF	2015

32	Introducing Discrete Frequency Infrared Technology for High-Throughput Biofluid Screening	Caryn Hughes, Graeme Clemens, Benjamin Bird, Timothy Dawson, Katherine M. Ashton, Michael D. Jenkinson, Andrew Brodbelt, Miles Weida, Edeline Fotheringham, Matthew Barre, Jeremy Rowlette, Matthew J. Baker	Scientific Reports/6:20173/ DOI: 10.1038/srep20173	Biomedical, Microfluidics, Cancer Research	Spero	2015
33	Method for Time-Resolved Monitoring of a Solid State Biological Film Using Photothermal Infrared Nanoscopy on the Example of Poly-L-lysine	Georg Ramer, Anna Balbekova, Andreas Schwaighofer, Bernhard Lendl	Analytical Chemistry/ DOI: 10.1021/acs.analchem.5b00241	Nanoscale	EC-QCL, Hedgehog	2015
34	New Source Improves Infrared Imaging	Daylight	C & E News	Biomedical	Spero	2015

35	Observation of a Luttinger-liquid plasmon in metallic single-walled carbon nanotubes	Zhiwen Shi, Xiaoping Hong, Hans A. Bechtel, Bo Zeng, Michael C. Martin, Kenji Watanabe, Takashi Taniguchi, Yuen-Ron Shen, Feng Wang	Nature Photonics, DOI:10.1038/NPHOTON.2015.123	Nanoscale	MIRcat	2015
36	Optimization of mid-IR photothermal Imaging for Tissue Analysis	Atcha Totachawattana, Shyamsunder Erramilli, Michelle Y. Sander	SPIE Vol. 9584	Biomedical, Tissue Analysis, Nanoscale	EC-QCL, Hedgehog, Pulsed Tunable Laser	2015
37	Propene concentration sensing for combustion gases using quantum-cascade laser absorption near 11 μm	Robin S. M. Chrystie, Ehson F. Nasir, Aamir Farooq	App Phys B DOI 10.1007/s00340-015-6139-4	Environmental Monitoring, Gas/Liquid Phase Analysis (SA)	EC-QCL, Hedgehog	2015

38	Real-time mid-IR chemical imaging of dynamic processes: Proton-Dueteron exchange within a micro fluidic system using the Spero™ QCL based microscope	Bill Mohar	Application Note: 201501	Biomedical, Microfluidics, Chemical Imaging	Spero	2015
39	Real-time multiplexed digital cavity-enhanced spectroscopy	Toby K. Boyson, Paul J. Dagdigian, Karl D. Pavey, Nicholas J. FitzGerald, Thomas G. Spence, David S. Moore, and Charles C. Harb	Optics Letters/ Vol. 40, No. 19	Environmental Monitoring	EC-QCL, Hedgehog	2015
40	Rovibrational analysis of the water bending vibration in the mid-infrared spectrum of atmospherically significant N₂-H₂O complex	S.D. Springer, B.A. McElmurry, Z. Wang, I.I. Leonov, R.R. Lucchese, J.W. Bevan, L.H. Coudert	Chemical Physics Letters 633 (2015) 229-233	Environmental Monitoring	MHF	2015

41	Surface-enhanced mid-infrared spectroscopy using a quantum cascade laser,"	Anton Hasenkampf, Niels Kröger, Arthur Schönhals, Wolfgang Petrich, Annemarie Pucci	Optics Express 5670/ DOI: 10.1364/OE.23.005670	Biomedical	EC-QCL, Hedgehog	2015
42	Tunneling Plasmonics in Bilayer Graphene	Z. Fei, E. G. Iwinski, G. X. Ni, L. M. Zhang, W. Bao, A. S. Rodin, Y. Lee, M. Wagner, M. K. Liu, S. Dai, M. D. Goldflam, M. Thiemens, F. Keilmann, C. N. Lau, A. H. Castro-Neto, M. M. Fogler, D. N. Basov	Nano Lett. DOI: 10.1021/acs.nanolett.5b00912	Nanoscale	MIRcat	2015
43	Vibrational Stark Effects To Identify Ion Pairing and Determine Reduction Potentials in Electrolyte-Free Environments	Tomoyasu Mani, David C. Grills, John R. Miller	Journal of the American Chemical Society/ DOI: 10.1021/ja512302c	Time Resolved		2015

44	Mechanism of the Formation of a Mn-Based CO2 Reduction Catalyst Revealed by Pulse Radiolysis with Time-Resolved Infrared Detection	David C. Grills, Jaime A. Farrington, Bobby H. Layne, Jack M. Preses, Sergei V. Lyman, James F. Wishart, Barbara A. Mello	Journal of the American Chemical Society/ DOI: 10.1021/ja501051s	Time Resolved		2014
45	Effect of Hydrophobic Interactions on the Folding Mechanism of β-Hairpins	Alexander Popp, Timothy A. Kiederling, Karin Hauser	The Journal of Physical Chemistry B / DOI: 10.1021/jp506658x	Biomedical, Protein Analysis, Time Resolve	EC-QCL, Hedgehog, Pulsed Tunable Laser	2014
46	Heterogeneously Integrated Silicon Photonics for the Mid-Infrared and Spectroscopic Sensing	Yu Chen, Hongtao Lin, Juejun Hu, Mo Li	ACS Nano, DOI 10.1021/nn501765k	Environmental Monitoring, Sensors, Analyzers & Spectrometers	EC-QCL, Hedgehog, MIRcat	2014
47	High-confidence, high-throughput screening with high-def IR microspectroscopy	Benjamin Bird, Miles Weida, Jeremy Rowlette, Matthew Barre, David Arnone, Timothy Day	BioOptics World	Biomedical	Spero	2014

48	IR Near-Field Spectroscopy and Imaging of Single LiFePO4 Microcrystals	I. T. Lucas, A. S. McLeod, J. S. Syzdek, D. S. Middlemiss, C. P. Grey, D. N. Basov, R. Kosteki	Nano Letters/ DOI: 10.1021/nl5010898	Nanoscale	EC-QCL, Unicorn II	2014
49	Kinetic and Mechanistic Studies of Carbon-to-Metal Hydrogen Atom Transfer Involving Os-Centered Radicals: Evidence for Tunneling	Anna Lewandowska-Andralojk, David C. Grills, Jie Zhang, R. Morris Bullock, Akira Miyazawa, Yuji Kawanishi, Etsuko Fujita	Journal of the American Chemical Society/ DOI: 10.1021/ja4123076	Time Resolved	CW/ mode-hop-free, EC-QCL	2014
50	Large scale imaging of tissue micro arrays (TMAs) using a tunable Quantum Cascade Laser (QCL) based microscope	Paul Bassana, Miles J. Weida, Jeremy Rowlette, and Peter Gardner	Analyst	Biomedical	Spero	2014
51	Mid-infrared Absorption Sensor for Measurement of CO and CO2 in Propulsion Flows	R. Mitchell Spearrin, Jay B. Jeffries, Ronald K. Hanson	AIAA SciTech 2014-0390	Environmental Monitoring	EC-QCL, Hedgehog	2014

52	Multi-band infrared CO2 absorption sensor for sensitive temperature and species measurements in high-temperature gases	R. M. Spearrin, W. Ren, J. B. Jeffries, R. K. Hanson	Appl. Phys. B. DOI: 10.1007/s00340-014-5772-7	Environmental Monitoring	EC-QCL, Hedgehog	2014
53	One-dimensional surface phonon polaritons in boron nitride nanotubes	Xiaoji G. Xu, Behnood G. Ghamsari, Jian-Hua Jiang, Leonid Gilburd, Gregory O. Andreev, Chunyi Zhi, Yoshio Bando, Dmitri Golberg, Pierre Berini, Gilbert C. Walker	Nature Communications/ DOI: 10.1038/natcomms5782	Nanoscale	EC-QCL, Hedgehog, Pulsed Tunable Laser	2014
54	Photoacoustic spectroscopy of surface adsorbed molecules using a nanstructured coupled resonator array	Dongkyu Lee, Seonghwan Kim, C. W. Van Neste, Moonchan Lee, Sangmin Jeon, Thomas Thundat	Nanotechnology/ DOI: 10.1088/0957-4484/25/3/035501	Standoff Detection	EC-QCL, Hedgehog	2014

55	Photothermal deflectometry enhanced by total internal reflection enables non-invasive glucose monitoring in human epidermis	M. A. Pleitez, O. Hertzberg, A. Bauer, M. Seeger, T. Lieblein, H. V. Lilienfeld-Toal, W. Mäntele	Analyst DOI: 10.1039/c4an01185f	Biomedical, Glucose Monitoring	EC-QCL, Hedgehog	2014
56	Pulsed quantum cascade laser based hypertemporal real-time headspace measurements	Toby K. Boyson, Dylan R. Rittman, Thomas G. Spence, Maria E. Calzada, Abhijit G. Kallapur, Ian R. Petersen, K. Paul Kirkbride, David S. Moore, and Charles C. Harb	Optics Express/ Vol. 22, No. 9/ DOI: 10.1364/OE.22.010519	Environmental Monitoring	EC-QCL, Hedgehog	2014
57	Quantum cascade laser-based hyperspectral imaging of biological tissue	Kroger, N., et. al. (Petrich)	J. Bio Optics	Biomedical		2014

58	Quantum cascade laser-based hyperspectral imaging of biological tissue	Niels Kröger, Alexander Egl, Maria Engel, Norbert Gretz, Katharina Haase, Iris Herpich, Bettina Kränzlin, Sabine Neudecker, Annemarie Pucci, Arthur Schönhals, Jochen Vogt, Wolfgang Petrich	Journal of Biomedical Optics 19(11), 111607	Biomedical, Tissue Analysis	EC-QCL, MHF	2014
59	Quantum cascade laser-based mid-infrared spectrochemical imaging of tissues and biofluids	Graeme Clemens, Benjamin Bird, Miles Weida, Jeremy Rowlette, Matthew J. Baker	Spectroscopy Europe/ DOI: 10.1039/C4AN00638K	Biomedical	Spero	2014
60	Radiation Stability of Cations in Ionic Liquids. 5. Task-Specific Ionic Liquids Consisting of Biocompatible Cations and the Puzzle of Radiation Hypersensitivity	Ilya A. Shkrob, Timothy W. Marin, James F. Wishart, David C. Grills	The Journal of Physical Chemistry B / DOI: 10.1021/jp5049716	Time Resolved		2014

61	Risley prism scan-based approach to standoff trace explosive detection	Craig R. Schwarze, Elizabeth Schundler, Robert Vaillancourt, Scott Newbry, Ryan Benedict-Gill	Optical Engineering 53(2), 021110	Standoff Detection	EC-QCL, Hedgehog	2014
62	Sensitive detection of CO2 concentration and temperature for hot gases using quantum-cascade laser absorption spectroscopy near 4.2 μm	Kuijun Wu, Faquan Li, Xuewu Cheng, Yong Yang, Xin Lin, Yuan Xia	Appl. Phys. B DOI 10.1007/s00340-014-5880-4	Environmental Monitoring	MHF	2014
63	Submillisecond mixing in a continuous-flow, microfluidic mixer utilizing mid-infrared hyperspectral imaging detection	Drew P. Kise, Donny Magana, Michael J. Reddish, R. Brian Dyer	Lab Chip/ DOI: 10.1039/c31c5117le	Biomedical, Microfluids	CW/ mode-hop-free, EC-QCL, Hedgehog	2014

64	Tunable Phonon Polaritons in Atomically Thin van der Waals Crystals of Boron Nitride	S. Dai, Z. Fei, Q. Ma, A. S. Rodin, M. Wagner, A. S. McLeod, M. K. Liu, W. Gannett, W. Regan, K. Watanabe, T. Taniguchi, M. Thiemens, G. Dominguez, A. H. Castro Neto, A. Zettl, F. Keilmann, P. Jarillo-Herrero, M. M. Fogler, D. N. Basov	Science Mag/ Vol. 343	Nanoscale	MIRcat	2014
65	Vibrational nano-spectroscopic imaging correlating structure with intermolecular coupling and dynamics	Benjamin Pollard, Eric A. Muller, Karsten Hinrichs, Markus B. Raschke	Nature Communications/ DOI:10.1038/natcomms4587	Nanoscale	MIRcat	2014
66	Breath Analysis with Broadly Tunable Quantum Cascade Lasers	Katharina Worle, Boris Miziakoff, Felicia Seichter, Andreas Wilk, Chris Armacost, Tim Day, Matthias Godejohann, Ulrich Wachter,	Analytical Chemistry/ DOI: 10.1021/ac3030703	Sensors, Analyzers & Spectrometers , Plasma	EC-QCL, Hedgehog	2013

		Josef Vogt, Peter Radermacher				
67	In vitro measurements of physiological glucose concentrations in biological fluids using mid-infrared light	Sabbir Liakat, Kevin A. Bors, Tzu-Yung Huang, Anna P. M. Michel, Eric Zanghi, Claire F. Gmachl	Biomedical Optics Express/ Vol. 4, No. 7/ DOI: 10.1364/BOE.4.001083	Biomedical, Glucose Monitoring	Hedgehog	2013
68	In Vivo Noninvasive Monitoring of Glucose Concentration in Human Epidermis by Mid-Infrared Pulsed Photoacoustic Spectroscopy	M. A. Pleitez, O. Hertzberg, A. Bauer, M. Seeger, T. Lieblein, H. V. Lilienfeld-Toal, W. Mäntele	Analytical Chemistry / DOI: 10.1021/ac302841f	Biomedical, Chemical Imaging, Glucose Monitoring	EC-QCL, Hedgehog	2013
69	Measures for optimizing pulsed EC-QC laser spectroscopy of liquids and applications to multi-analyte blood analysis	M. Brandstetter, C. Koch, A. Genner, B. Lendl	Proc SPIE Vol 8993 DOI:10.1117/12.2038585	Biomedical	EC-QCL	2013

70	Mid-infrared microspectroscopic imaging with a quantum cascade laser	Kevin Yeh, Matthew Schulmerich, Rohit Bhargava	Proc SPIE vol. 8726: 87260E-1/ DOI: 10.1117/12.2015984	Biomedical, Chemical Imaging	MIRcat, Hedgehog	2013
71	Multi-modal characterization of nanogram amounts of photosensitive polymer	Seonghwan Kim, Dongkyu Lee, Minhyuk Yun, Namchul Jung, Sangmin Jeon, Thomas Thundat	Applied Physics Letters 102, 024103	Nanoscale	MIRcat	2013
72	Nano-Chemical Infrared Imaging of membrane Proteins in Lipid Bilayers	Samuel Berweger, Duc M. Nguyen, Eric A. Muller, Hans A. Bechtel, Thomas T. Perkins, Markus B. Raschke	Journal of the American Chemical Society/ DOI: 10.1021/ja409815g	Nanoscale	EC-QCL, Hedgehog, Pulsed Tunable Laser	2013
73	Phase Controlled Homodyne Infrared Near-Field Microscopy and Spectroscopy Reveal Inhomogeneity within and among Individual Boron Nitride Nanotubes	Xiaoji G. Xu, Gilbert C. Walker, Adrienne E. Tanur	J Phys Chem A/ DOI: 10.1021/jp4008784	Nanoscale	EC-QCL, Hedgehog, Pulsed Tunable Laser	2013

74	Real-time monitoring of ozone in air using substrate-integrated hollow waveguide mid-infrared sensors	Petrucci, J.F., et. al., (Mizaikoff)	Sci. Reports	Environmental Monitoring		2013
75	Structural analysis and mapping of individual protein complexes by infrared nanospectroscopy	Amenabar, I., et. al. (Hillenbrand)	Nat Comm	Nanoscale		2013
76	Tip-enhanced infrared nanospectroscopy via molecular expansion force detection	Feng Lu, Mingzhou Jin, Mikhail A. Belkin	Nature Photonics, DOI:10.1038/NPHOTON.2013.373	Nanoscale	Hedgehog, Pulsed Tunable Laser	2013
77	Applications of Quantum Cascade Lasers in Plasma Diagnostics: A Review	J. Röpcke, P. B. Davies, N. Lang, A. Rousseau, S. Welzel	Journal of Physics D: Applied Physics / DOI: 10.1088/0022-3727/45/42/423001	Plasma	EC-QCL	2012

78	Attenuated total reflection mid-IR-spectroscopy for electrochemical applications using a QCL	Stefanie Pengel, Bernd Schönberger, Simantini Nayak, Andreas Erbe	Lasers, Sources, and Related Photonic Devices Technical Digest	Sensors, Analyzers & Spectrometers	EC-QCL, Hedgehog, MCT Detector	2012
79	Chemical Imaging using Infrared Photo-thermal Microspectroscopy	Robert Furstenberg, Christopher A. Kendziora, Michael R. Papantonakis, Viet Nguyen, R. A. McGill	Proc SPIE vol 8374: 837411-1/ DOI: 10.1117/12.919574	Biomedical, Chemical Imaging	EC-QCL, MIRcat	2012
80	Dual beam photoacoustic infrared spectroscopy of solids using an external cavity quantum cascade laser	M. Dehghany, K. H. Michaelian	Review of Scientific Instruments 83, 064901	Standoff Detection	EC-QCL, Hedgehog, MHF	2012

81	Frequency characterization of a swept-and-fixed-wavelength external-cavity quantum cascade laser by use of a frequency comb	Kevin Knabe, Paul A. Williams, Fabrizio R. Giorgetta, Chris M. Armacost, Sam Crivello, Michael B. Radunsky, Nathan R. Newbury	Optics Express/ Vol. 20, No. 11	Frequency Combs	EC-QCL, Hedgehog, MIRcat	2012
82	Near-field spectroscopy of silicon dioxide thin films	L. M. Zhang, G. O. Andreev, Z. Fei, A. S. McLeod, G. Dominguez, M. Thiemens, A. H. Castro-Neto, D. N. Basov, M. M. Fogler	Physical Review B / DOI: 10.1103/PhysRevB.85.075419	Nanoscale	MIRcat	2012
83	Nonpolar nitrous oxide dimer: Observation of combination bands of (14N2O)2 and (15N2O)2 involving the torsion and antigeared bending modes	M. Rezaei, K. H. Michaelian, N. Moazzen-Ahmadi	The Journal of Chemical Physics 136, 124308	Environmental Monitoring	EC-QCL, Hedgehog	2012

84	On-Chip Integrated Mid-Infrared GaAs/AlGaAs Mach-Zehnder Interferometer	Markus Sieger, Franz Balluff, Xiaofeng Wang, Seong-Soo Kim, Lothar Leidner, Guenter Gauglitz, Boris Mizaikoff	Analytical Chemistry/ DOI: 10.1021/ac302551s	Sensors, Analyzers & Spectrometers	EC-QCL, Hedgehog, MIRcat	2012
85	Part-per-trillion level SF6 detection using a quartz enhanced photoacoustic spectroscopy-based sensor with single-mode fiber-coupled quantum cascade laser excitation	Vincenzo Spagnola, Pietro Patimisco, Simone Borri, Gaetano Scamarcio, Bruce E. Bernacki, Jason Kriesel	Optics Letters/ Vol. 37, No. 21	Environmental Monitoring	EC-QCL, Hedgehog, MHF	2012
86	Plasma Chemical Study of a RF Discharge Containing Aluminum Tri-Isopropoxide Using MIR Absorption Spectroscopy Based on External-Cavity Quantum Cascade Lasers	D. Lopatik, S. Niemiets, M. Fröhlich, J. Röpcke, H. Kersten	Plasma Phys. 52, No. 10/ DOI: 10.1002/ctpp.201200044	Plasma	EC-QCL	2012

87	Pump-probe photothermal spectroscopy using quantum cascade lasers	R. H. Farahi, A. Passian, L. Tetard, T. Thundat	Journal of Physics D: Applied Physics / DOI: 10.1088/0022-3727/45/12/125101	Standoff Detection		2012
88	Quantum Cascade Laser-Based Measurement of Metal Alkylamide Density During Atomic Layer Deposition	James E. Maslar, William A. Kimes, Brent A. Sperling	OSA Vol. 21, No. 10/ DOI: 10.1364/OE.21.011659	Sensors, Analyzers & Spectrometers	EC-QCL, Hedgehog, MCT Detector	2012
89	Two-line thermometry and H₂O measurement for reactive mixtures in rapid compression machine near 7.6 μm	Apurba Kumar Das, Mruthunjaya Uddi, Chih-Jen Sung	Combustion and Flame 159 (2012) 3493-3501	Environmental Monitoring	MHF	2012

90	Achieving Secondary Structural Resolution in Kinetic Measurements of Protein Folding: A Case Study of the Folding Mechanism of Trp-cage	Robert M. Culik, Arnaldo L. Serrano, Michelle R. Bunagan, Feng Gai	Chem. Int. Ed/ DOI: 10.1002/anie.201104085	Biomedical, Protein Analysis	CW/ mode-hop-free, EC-QCL, Hedgehog, Pulsed Tunable Laser	2011
91	Application Note: Continuous tuning of a Daylight Solutions 6.06 μm cw Ecqcl™ without loss of coverage due to mode hops via sequential scans at different laser head temperatures.	Gary Douberly		QCL technology	CW/ mode-hop-free, EC-QCL	2011
92	Chirped quantum cascade laser induced rapid passage signatures in optically thick gas	Northern, J.H., et. al. (Duxbury)	Appl. Phys. B	Environmental Monitoring		2011

93	Extremely sensitive detection of NO₂ employing off-axis integrated cavity output spectroscopy coupled with multiple line integrated absorption spectroscopy	Gottipaty N. Rao, Andreas Karpf	Applied Optics / Vol. 50, No. 13	Environmental Monitoring	EC-QCL, Hedgehog	2011
94	Hollow Core Fiber Optics for Mid-Wave and Long-Wave Infrared Spectroscopy	Jason M. Kriesel, Nahum Gat, Bruce E. Bernacki, Rebecca L. Erikson, Bret D. Cannon, Tanya L. Myers, Carlos M. Bledt, James A. Harrington	SPIE DSS, 8018-31	Standoff Detection	EC-QCL, Hedgehog	2011
95	Infrared absorption nano-spectroscopy using sample photoexpansion induced by tunable quantum cascade lasers	Feng Lu, Mikhail Belkin	Optic Express 19942, Vol. 19, No. 21	Nanoscale	Hedgehog	2011

96	Infrared and microwave spectra of the acetylene-ammonia and carbonyl sulfide-ammonia complexes: a comparative study of a weak C—H···N Hydrogen bond and an S···N bond	Xunchen Liu, Yunjie Xu	Phys. Chem. Chem. Phys., 2011, 13, 14235-14242	Biomedical	MHF	2011
97	Infrared nanoscopy of Dirac Plasmons at the Graphene - SiO2 Interface.	Zhe Fei, Gregory O. Andreev, Wenzhong Bao, Lingfeng M. Zhang, Alexander S. McLeod, Chen Wang, Margaret K. Stewart, Zeng Zhao, Gerardo Dominguez, Mark Thiemens, Michael M. Fogler, Michael J. Tauber, Antonio H. Catro-Neto, Chun Ning Lau, Fritz Keilmann, Dimitri N. Basov	Nano Letters/ DOI: 10.1021/nl202362d	Nanoscale	Hedgehog	2011

98	Mid-infrared photonic crystal cavities in silicon	Raji Shankar, Rick Leijssen, Irfan Bulu, Marko Lončar	Optics Express/ Vol. 19, No. 6	Sensors, Analyzers & Spectrometers	Hedgehog, EC-QCL	2011
99	Morphed intermolecular potential of OC:HCCH complex based on infrared quantum cascade laser spectroscopy	Luis A. Rivera-Rivera, Blake A. McElmurry, Zhongcheng Wang, Igor I. Leonov, Robert R. Lucchese, John W. Bevan	Chemical Physical Letters/ DOI: 10.1016/j.cplett.2011.11.072	Time Resolved	CW/ mode-hop-free, EC-QCL	2011
100	New photoacoustic cell design for studying aqueous solutions and gels	J. Kottmann, J. M. Rey, M. W. Sigrist	Review of Scientific Instruments 82, 084903	Biomedical, Chemical Imaging	EC-QCL, MIRcat	2011
101	Ppb-level detection of nitric oxide using an external cavity quantum cascade laser based QEPAS sensor	Lei Dong, Vincenzo Spagnolo, Rafal Lewicki, Frank K. Tittel	Optics Express 24037 / Vol. 19, No.24	Environmental Monitoring	EC-QCL, Hedgehog	2011
102	Quantum-Cascade Laser-Based Vibrational Circular Dichroism	Steffen Lüdeke, Marcel Pfeifer, Peer Fischer	Journal of the American Chemical Society/ DOI: 10.1021/ja200539d	Sensors, Analyzers & Spectrometers	EC-QCL, Hedgehog	2011

103	Real-time monitoring of benzene, toluene, and p-xylene in a photoreaction chamber with a tunable mid-infrared laser and ultraviolet differential optical absorption spectroscopy	Matthew T. Parsons, Ihor Sydoryk, Alan Lim, Thomas J. McIntyre, John Tulip, Wolfgang Jäger, Karen McDonald	Applied Optics / Vol. 50, No. 4	Environmental Monitoring	EC-QCL, Hedgehog, MHF	2011
104	Tunable Mid-Infrared Lasers in Physical Chemosensors towards the Detection of Physiologically Relevant Parameters in Biofluids	Markus Brandstetter, Bernhard Lendl	DOI: 10.1016/j.snb.2011.06.081	Biomedical	EC-QCL	2011

105	Wavelength-modulation-spectroscopy for real-time, in situ NO detection in combustion gases with a 5.2 μm quantum-cascade laser	X. Chao, J.B. Jeffries, R.K. Hanson	Appl. Phys. B DOI 10.1007/s00340-011-4839-y	Environmental Monitoring	EC-QCL, Hedgehog	2011
106	Nanosecond step-scan FTIR spectroscopy of a pulsed external-cavity quantum-cascade laser	Markus Brandstetter, Bernhard Lendl, Andreas Genner		Biomedical, Time Resolve	EC-QCL	2011
107	Application of External-Cavity Quantum Cascade Infrared Lasers to Nanosecond Time-Resolved Infrared Spectroscopy of Condensed-Phase Samples Following Pulse Radiolysis	David C. Grills, Andrew R. Cook, Etsuko Fujita, Michael W. George, Jack M. Preses, James F. Wishart	Applied Spectroscopy Vol. 64, No. 6	Time Resolved	EC-QCL, Hedgehog	2010

108	Development of a MEMS-Scale Photoacoustic Chemical Sensor Using a Quantum Cascade Laser	Ellen L. Holthoff, David A. Heaps, Paul M. Pellegrino	IEEE Sensors Journal, Vol. 10, No. 3	Standoff Detection	EC-QCL, Hedgehog	2010
109	Development of a tunable polarimetric scatterometry system in the MWIR and LWIR	Thomas M. Fitzgerald, Michael A Marciniak, Stephen E. Nauyoks	Plasma Phys. 52, No. 10/ DOI: 10.1002/ctpp.201200044	Plasma	EC-QCL, Hedgehog	2010
110	Distributed nerve gases sensor based on IR absorption in hollow optical fiber	R. Viola, N. Liberatore, D. Luciani, S. Mengali, L. Pierno	Proc SPIE, Vol 7838, 78380H-1	Standoff Detection	EC-QCL, Hedgehog	2010
111	Enhancement of trace gas detection by integrating wavelength modulated spectra across multiple lines	Gottipaty N. Rao, Andreas Karpf	Applied Optics / Vol. 49, No. 8	Environmental Monitoring	EC-QCL, Hedgehog, MHF	2010

112	High sensitivity detection of NO₂ employing cavity ringdown spectroscopy and an external cavity continuously tunable quantum cascade laser	Gottipaty N. Rao, Andreas Karpf	Applied Optics / Vol. 49, No. 26	Environmental Monitoring	EC-QCL, Hedgehog	2010
113	Infrared Signature and Folding Dynamics of a Helical B-Peptide	Geronda Montalvo, Matthias M. Waegele, Scott Shandler, Feng Gai, William F. DeGrado	J. Am. Chem. Soc./ DOI: 10.1021/ja100459a	Biomedical, Protein Analysis	EC-QCL, Hedgehog, MIRcat	2010
114	Infrared Study of the Folding Mechanism of a Helical Hairpin: Porcine PYY	Matthias M. Waegele, Feng Gai	Biochemistry/ DOI: 10.1021/bi100851c	Biomedical, Protein Analysis	EC-QCL, Hedgehog, MIRcat	2010
115	Jet-cooled infrared spectra of molecules and complexes with a cw mode-hop-free external cavity QCL and a distributed-feedback QCL	X. Liu, Y. Xu, Z. Su, W.S. Tam, I. Leonov	Appl. Phys. B DOI 10.1007/s00340-010-4147-y	Environmental Monitoring	EC-QCL, Hedgehog, MHF	2010

116	Mid-infrared absorption microscopy with $\lambda/100$ spatial resolution using tunable quantum cascade lasers	Feng Lu, Mikhail Belkin	OSA	Nanoscale	MIRcat	2010
117	NO trace gas sensor based on quartz-enhanced photoacoustic spectroscopy and external cavity quantum cascade laser	V. Spagnolo, A.A. Kosterev, L. Dong, R. Lewicki, F.K. Tittel	Appl Phys B (2010) 100: 125-130 DOI 10.1007/s00340-010-3984-z	QCL technology	EC-QCL, Hedgehog, MHF	2010
118	Performance characteristics of a continuous-wave compact widely tunable external cavity interband cascade lasers	David Caffey, Timothy Day, Chul Soo Kim, Mijin Kim, Igor Vurgaftman, William W. Bewley, J. Ryan Lindle, Chadwick L. Canedy, Joshua Abell, Jerry R. Meyer	Vol. 18, No. 15/ Optics Express	QCL technology	EC-QCL, Hedgehog	2010

119	QEPAS detector for rapid spectral measurements	A.A. Kosterev, P.R. Buerki, L. Dong, M. Reed, T. Day, F.K. Tittel	Appl Phys B DOI 10.1007/s00340-010-3975-0	QCL technology, Gas/Liquid Phase Analysis (SA)	EC-QCL, Hedgehog	2010
120	Quantum cascade laser open-path system for remote sensing of trace gases in Beijing, China	Anna P. M. Michel, Peter Q. Liu, June K. Yeung, Paul Corrigan, Mary Lynn Baeck, Zifa Wang, Timothy Day, Fred Moshary, Claire F. Gmachl	Optical Engineering 49(11), 111125	Environmental Monitoring, Gas/Liquid Phase Analysis (SA)	EC-QCL, Hedgehog	2010
121	Quantum Cascade laser-based Photoacoustic Spectroscopy for Trace Vapor Detection and Molecular Discrimination	Ellen Holthoff, Paul Pellegrino, John Bender, Almon Fisher	Sensors, ISSN 1424-8220, DOI: 10.3390/s100301986	Standoff Detection	EC-QCL, Hedgehog	2010

122	Quantum Cascade lasers in chemical physics	Robert F. Curl, Federico Capasso, Claire Gmachl, Anatoliy A. Kosterev, Barry McManus, Rafal Lewicki, Michael Pusharsky, Gerard Wyszoki, Frank K. Tittel	Chemical Physics Letters doi: 10.1016/j.cplett.2009.12.073	QCL technology		2010
123	Silicon waveguides and ring resonators at 5.5 μm	Alexander Spott, Yang Liu, Tom Baehr-Jones, Rob Ilic, Michael Hochberg	Applied Physics Letters 97, 213501	Sensors, Analyzers & Spectrometers	CW-MHF	2010
124	Stability of widely tunable, continuous wave external-cavity quantum cascade laser for absorption spectroscopy	Vasili L. Kasyutich, R.K. Raja Ibrahim, Philip A. Martin	Infrared Physics and Technology DOI: 10.1016/j.infrared.2010.07.004	QCL technology	EC-QCL, Hedgehog	2010
125	Tunable external cavity quantum cascade laser for the simultaneous determination of glucose and lactate in aqueous phase	Markus Brandstetter, Bernhard Lendl, Andreas Genner, Kresmir Anic	Analyst/ DOI: 10.1039/c0an00532k	Biomedical	EC-QCL, Hedgehog	2010

126	Utilizing broad gain bandwidth in quantum cascade devices	Miles J. Weida, David Caffey, Jeremy Rowlette, David F. Arnone, Timothy Day	Optical Engineering Vol. 49(11)	QCL technology	EC-QCL, Hedgehog	2010
127	Vibrational Microspectroscopy of Single Proteins	Fujiyoshi, S. et. al. (Matsushita)	J. Phys. Chem. Lett	Biomedical		2010
128	A Mid-infrared QEPAS sensor device for TATP detection	Bauer, C. et. al. (Tittel)	J. Physics: Conference Series	Standoff Detection		2009
129	Absorption and wavelength modulation spectroscopy of NO₂ using a tunable, external cavity continuous wave quantum cascade laser	Gottipaty N. Rao, Andreas Karpf	Applied Optics / Vol. 48, No. 2	Environmental Monitoring	EC-QCL, Hedgehog	2009
130	Direct and wavelength modulation spectroscopy using a cw external cavity quantum cascade laser	G. Hancock, J. H. van Helden, R. Peverall, G. A. D. Ritchie, and R. J. Walker	Applied Physics Letters 94, 201110	QCL technology	EC-QCL, Hedgehog	2009

131	Enhanced sensitivity for the detection of trace gases using multiple line integrated absorption spectroscopy	Adreas Karpf, Gottipaty N. Rao	Applied Optics / Vol. 48, No. 27	Environmental Monitoring	EC-QCL, Hedgehog, MHF	2009
132	External cavity widely tunable quantum cascade laser based hollow waveguide gas sensors for multianalyte detection	C. Young, S. S. Kim, Y. Luzinova, M. Weida, D. Arnone, E. Takeuchi, T. Day, B. Mizaikoff	Sensors and Actuators B: Chemical/ DOI: 10.1016/j.snb.2009.03.023	Sensors, Analyzers, and Spectrometers	EC-QCL	2009
133	Rapid passage effects in nitrous oxide induced by a chirped external cavity quantum cascade laser,	Van Helden, J.H., et. al., (Walker)	Appl. Phys. Lett	Environmental Monitoring		2009
134	Standoff Spectroscopy of Surface Adsorbed Chemicals	C. W. Van Neste, L. R. Senesac, T. Thundat	Anal. Chem., 81, 1952-1956	Standoff Detection	EC-QCL, Hedgehog	2009

135	Studying Highly Reactive Organometallic complexes with fast time-resolved infrared spectroscopy using external cavity quantum cascade lasers	James A. Calladine, Michael W. George	Spectroscopy Europe Vol. 21, No.6	Time Resolved	EC-QCL	2009
136	Application of quantum cascade lasers to trace gas analysis	A. Kosterev, G. Wysocki, Y. Bakhirkin, S. So, R. Lewicki, M. Fraser, F. Tittel, R. F. Curl	Appl. Phys. B 90, 165-176 DOI: 10.1007/s00340-007-2846-9	QCL technology, Gas/Liquid Phase Analysis (SA)	EC-QCL, Hedgehog	2008
137	Infrared hyperspectral imaging using a broadly tunable external cavity quantum cascade laser and microbolometer focal plane array	Mark C. Phillips, Nicolas Ho	Optics Express 1836, Vol. 16, No. 3	Standoff Detection	EC-QCL, Hedgehog	2008

138	Standoff detection of trace explosives via resonant infrared photothermal imaging	R. Furstenberg, C. A. Kendziora, J. Stepnowski, S. V. Stepnowski, M. Rake, M. R. Papantonakis, V. Nguyen, G. K. Hubler, R. A. McGill	Appl. Phys. Letters 93, 224103	Standoff Detection	EC-QCL, Hedgehog, Pulsed Tunable Laser	2008
139	Standoff photoacoustic spectroscopy	C. W. Van Neste, L. R. Senesac, T. Thundat	Applied Physics Letters 92, 234102	Standoff Detection	EC-QCL, Hedgehog	2008
140	Standoff photoacoustic spectroscopy	C. W. Van Neste, L. R. Senesac, T. Thundat	Applied Physics Letters 92, 234102	Standoff Detection	EC-QCL, Hedgehog	2008
141	Investigation of Standoff Explosives Detection via Photothermal/Photoacoustic Interferometry	Pak S. Cho, Robert M. Jones, Timothy Shuman, Daniel Scoglietti, Geof Harston		Standoff Detection	EC-QCL, Hedgehog, Pulsed Tunable Laser	

142	Quantum cascade laser-based substance detection: approaching the quantum noise limit	Peter C. Kuffner, Kathryn J. Conroy, Toby K. Boyson, Greg Milford, Mohamed A. Mabrok, Abhijit G. Kallapur, Ian R. Petersen, Maria E. Calzada, Thomas G. Spence, Kenneth P. Kirkbride, Charles C. Harb		Standoff Detection	MCT Detector	
-----	--	--	--	--------------------	--------------	--