

Lukas Emmenegger

List of Publications by Year in descending order

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120
papers

3,799
citations

117571

34
h-index

143943

57
g-index

172
all docs

172
docs citations

172
times ranked

4247
citing authors

#	ARTICLE	IF	CITATIONS
1	Mechanisms of N ₂ O production in biological wastewater treatment under nitrifying and denitrifying conditions. <i>Water Research</i> , 2012, 46, 1027-1037.	5.3	443
2	Oxidation Kinetics of Fe(II) in a Eutrophic Swiss Lake. <i>Environmental Science & Technology</i> , 1998, 32, 2990-2996.	4.6	131
3	Light-induced redox cycling of iron in circumneutral lakes. <i>Limnology and Oceanography</i> , 2001, 46, 49-61.	1.6	130
4	Ammonia monitoring at trace level using photoacoustic spectroscopy in industrial and environmental applications. <i>Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy</i> , 2004, 60, 3259-3268.	2.0	120
5	New method for isotopic ratio measurements of atmospheric carbon dioxide using a 4.3 μ m pulsed quantum cascade laser. <i>Applied Physics B: Lasers and Optics</i> , 2008, 90, 301-309.	1.1	107
6	Secondary Effects of Catalytic Diesel Particulate Filters: Conversion of PAHs versus Formation of Nitro-PAHs. <i>Environmental Science & Technology</i> , 2008, 42, 3773-3779.	4.6	107
7	Site-specific ¹⁵ N isotopic signatures of abiotically produced N ₂ O. <i>Geochimica Et Cosmochimica Acta</i> , 2014, 139, 72-82.	1.6	103
8	Validation of the Swiss methane emission inventory by atmospheric observations and inverse modelling. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 3683-3710.	1.9	103
9	Compact multipass optical cell for laser spectroscopy. <i>Optics Letters</i> , 2013, 38, 257.	1.7	96
10	COVID-19 lockdowns highlight a risk of increasing ozone pollution in European urban areas. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 4169-4185.	1.9	91
11	High precision and continuous field measurements of $\delta^{13}C$ and $\delta^{18}O$ in carbon dioxide with a cryogen-free QCLAS. <i>Applied Physics B: Lasers and Optics</i> , 2008, 92, 451.	1.1	87
12	N ₂ O exchange over managed grassland: Application of a quantum cascade laser spectrometer for micrometeorological flux measurements. <i>Agricultural and Forest Meteorology</i> , 2010, 150, 775-785.	1.9	87
13	Methodical study of nitrous oxide eddy covariance measurements using quantum cascade laser spectrometry over a Swiss forest. <i>Biogeosciences</i> , 2007, 4, 927-939.	1.3	85
14	Experimental assessment of N ₂ O background fluxes in grassland systems. <i>Tellus, Series B: Chemical and Physical Meteorology</i> , 2007, 59, 470-482.	0.8	83
15	In situ observations of the isotopic composition of methane at the Cabauw tall tower site. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 10469-10487.	1.9	77
16	Determination of N ₂ O isotopomers with quantum cascade laser based absorption spectroscopy. <i>Optics Express</i> , 2008, 16, 9239.	1.7	73
17	Continuous isotopic composition measurements of tropospheric CO ₂ at Jungfraujoch (3580 m a.s.l.), Switzerland: real-time observation of regional pollution events. <i>Atmospheric Chemistry and Physics</i> , 2011, 11, 1685-1696.	1.9	72
18	Site selective real-time measurements of atmospheric N ₂ O isotopomers by laser spectroscopy. <i>Atmospheric Measurement Techniques</i> , 2012, 5, 1601-1609.	1.2	72

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19	Quantum cascade laser based spectrometer for in situ stable carbon dioxide isotope measurements. <i>Infrared Physics and Technology</i> , 2008, 51, 198-206.	1.3	62
20	Isotope Signatures of N ₂ O in a Mixed Microbial Population System: Constraints on N ₂ O Producing Pathways in Wastewater Treatment. <i>Environmental Science & Technology</i> , 2013, 47, 130118101927005.	4.6	59
21	High-resolution and gapless dual comb spectroscopy with current-tuned quantum cascade lasers. <i>Optics Express</i> , 2020, 28, 6197.	1.7	53
22	Isotopic evidence for nitrous oxide production pathways in a partial nitrification-anammox reactor. <i>Water Research</i> , 2015, 83, 258-270.	5.3	52
23	Compact, circular, and optically stable multipass cell for mobile laser absorption spectroscopy. <i>Optics Letters</i> , 2018, 43, 2434.	1.7	51
24	Novel laser spectroscopic technique for continuous analysis of N ₂ O isotopomers – application and intercomparison with isotope ratio mass spectrometry. <i>Rapid Communications in Mass Spectrometry</i> , 2013, 27, 216-222.	0.7	50
25	Impact of Low- and High-Oxidation Diesel Particulate Filters on Genotoxic Exhaust Constituents. <i>Environmental Science & Technology</i> , 2010, 44, 1078-1084.	4.6	48
26	Ammonia emissions and emission factors of naturally ventilated dairy housing with solid floors and an outdoor exercise area in Switzerland. <i>Atmospheric Environment</i> , 2012, 47, 183-194.	1.9	48
27	Selective measurements of NO, NO ₂ and NO _y in the free troposphere using quantum cascade laser spectroscopy. <i>Atmospheric Measurement Techniques</i> , 2013, 6, 927-936.	1.2	47
28	Mid-infrared spectroscopy for gases and liquids based on quantum cascade technologies. <i>Analyst</i> , The, 2014, 139, 2039-2046.	1.7	45
29	Tracking isotopic signatures of CO ₂ at the high altitude site Jungfraujoch with laser spectroscopy: analytical improvements and representative results. <i>Atmospheric Measurement Techniques</i> , 2013, 6, 1659-1671.	1.2	44
30	First on-line isotopic characterization of N ₂ O above intensively managed grassland. <i>Biogeosciences</i> , 2015, 12, 2517-2531.	1.3	44
31	Real-time analysis of $\delta^{13}\text{C}$ and $\delta^{13}\text{C}$ - and $\delta^{13}\text{C}$ -D-CH ₄ in ambient air with laser spectroscopy: method development and first intercomparison results. <i>Atmospheric Measurement Techniques</i> , 2016, 9, 263-280.	1.2	43
32	PathfinderTURB: an automatic boundary layer algorithm. Development, validation and application to study the impact on in situ measurements at the Jungfraujoch. <i>Atmospheric Chemistry and Physics</i> , 2017, 17, 10051-10070.	1.9	41
33	Application of a quantum cascade laser-based spectrometer in a closed chamber system for real-time $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ measurements of soil-respired CO ₂ . <i>Agricultural and Forest Meteorology</i> , 2011, 151, 39-48.	1.9	39
34	Reactive nitrogen compounds (RNCs) in exhaust of advanced PM ₁₀ abatement technologies for future diesel applications. <i>Atmospheric Environment</i> , 2011, 45, 3203-3209.	1.9	39
35	Continuous field measurements of $\delta^{13}\text{C}$ CO ₂ and trace gases by FTIR spectroscopy. <i>Isotopes in Environmental and Health Studies</i> , 2008, 44, 241-251.	0.5	36
36	Attribution of N ₂ O sources in a grassland soil with laser spectroscopy based isotopocule analysis. <i>Biogeosciences</i> , 2019, 16, 3247-3266.	1.3	36

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37	Methane preconcentration by adsorption: a methodology for materials and conditions selection. <i>Adsorption</i> , 2014, 20, 657-666.	1.4	35
38	Simultaneous measurement of NO and NO ₂ by dual-wavelength quantum cascade laser spectroscopy. <i>Optics Express</i> , 2015, 23, 1512.	1.7	35
39	Secondary Effects of Catalytic Diesel Particulate Filters: Copper-Induced Formation of PCDD/Fs. <i>Environmental Science & Technology</i> , 2007, 41, 5789-5794.	4.6	34
40	Assessment of recent advances in measurement techniques for atmospheric carbon dioxide and methane observations. <i>Atmospheric Measurement Techniques</i> , 2016, 9, 4737-4757.	1.2	31
41	A cost-effective method for simulating city-wide air flow and pollutant dispersion at building resolving scale. <i>Atmospheric Environment</i> , 2017, 158, 181-196.	1.9	31
42	Time-resolved ammonia measurement in vehicle exhaust. <i>International Journal of Environment and Pollution</i> , 2004, 22, 342.	0.2	30
43	Nitrous oxide and methane emissions and nitrous oxide isotopic composition from waste incineration in Switzerland. <i>Waste Management</i> , 2015, 35, 135-140.	3.7	30
44	A compact QCL spectrometer for mobile, high-precision methane sensing aboard drones. <i>Atmospheric Measurement Techniques</i> , 2020, 13, 4715-4726.	1.2	30
45	Multi-species trace gas sensing with dual-wavelength QCLs. <i>Applied Physics B: Lasers and Optics</i> , 2018, 124, 1.	1.1	28
46	Evaluation of equivalent black carbon source apportionment using observations from Switzerland between 2008 and 2018. <i>Atmospheric Measurement Techniques</i> , 2020, 13, 1867-1885.	1.2	28
47	Laser driving and data processing concept for mobile trace gas sensing: Design and implementation. <i>Review of Scientific Instruments</i> , 2018, 89, 065107.	0.6	27
48	PCDD/F Formation in an Iron/Potassium-Catalyzed Diesel Particle Filter. <i>Environmental Science & Technology</i> , 2013, 47, 6510-6517.	4.6	26
49	Effects of a Combined Diesel Particle Filter-DeNO _x System (DPN) on Reactive Nitrogen Compounds Emissions: A Parameter Study. <i>Environmental Science & Technology</i> , 2012, 46, 13317-13325.	4.6	25
50	Integration and calibration of non-dispersive infrared (NDIR) CO ₂ and low-cost sensors and their operation in a sensor network covering Switzerland. <i>Atmospheric Measurement Techniques</i> , 2020, 13, 3815-3834.	1.2	25
51	Circular paraboloid reflection cell for laser spectroscopic trace gas analysis. <i>Journal of the Optical Society of America A: Optics and Image Science, and Vision</i> , 2016, 33, 913.	0.8	24
52	Tracking nitrous oxide emission processes at a suburban site with semicontinuous, in situ measurements of isotopic composition. <i>Journal of Geophysical Research D: Atmospheres</i> , 2017, 122, 1850-1870.	1.2	23
53	Dual-Section DFB-QCLs for Multi-Species Trace Gas Analysis. <i>Photonics</i> , 2016, 3, 24.	0.9	22
54	Dual-wavelength DFB quantum cascade lasers: sources for multi-species trace gas spectroscopy. <i>Applied Physics B: Lasers and Optics</i> , 2018, 124, 1.	1.1	22

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55	Evaluation of high-resolution GRAMMâ€“GRAL (v15.12/v14.8) NO<sub>2</sub> simulations over the city of ZÃ¼rich, Switzerland. Geoscientific Model Development, 2017, 10, 3441-3459.	1.3	21
56	A dual tracer ratio method for comparative emission measurements in an experimental dairy housing. Atmospheric Environment, 2018, 179, 12-22.	1.9	19
57	Breath acetone as a marker of energy balance: an exploratory study in healthy humans. Nutrition and Diabetes, 2018, 8, 50.	1.5	19
58	Highly Selective Volatile Organic Compounds Breath Analysis Using a Broadly-Tunable Vertical-External-Cavity Surface-Emitting Laser. Analytical Chemistry, 2017, 89, 6377-6383.	3.2	18
59	Temperature Dependence and Interferences of NO and N₂O Microelectrodes Used in Wastewater Treatment. Environmental Science & Technology, 2012, 46, 2257-2266.	4.6	17
60	Recent advances in measurement techniques for atmospheric carbon monoxide and nitrous oxide observations. Atmospheric Measurement Techniques, 2019, 12, 5863-5878.	1.2	17
61	N₂O emissions and source processes in snow-covered soils in the Swiss Alps. Isotopes in Environmental and Health Studies, 2013, 49, 520-531.	0.5	15
62	Surface ozone in the Southern Hemisphere: 20Â½years of data from aÂ½site with a unique setting in El Tololo, Chile. Atmospheric Chemistry and Physics, 2017, 17, 6477-6492.	1.9	15
63	High-precision ethanol measurement by mid-IR laser absorption spectroscopy for metrological applications. Optics Express, 2019, 27, 5314.	1.7	15
64	Controlled-release experiment to investigate uncertainties in UAV-based emission quantification for methane point sources. Atmospheric Measurement Techniques, 2022, 15, 2177-2198.	1.2	14
65	Development of a field-deployable method for simultaneous, real-time measurements of the four most abundant N₂O isotopocules. Isotopes in Environmental and Health Studies, 2018, 54, 1-15.	0.5	13
66	Highly sensitive and fast detection of propaneâ€“butane using a 3Â½m quantum cascade laser. Applied Optics, 2013, 52, 4613.	0.9	12
67	Beam folding analysis and optimization of mask-enhanced toroidal multipass cells. Optics Letters, 2017, 42, 3137.	1.7	12
68	Abundance and sources of atmospheric halocarbons in the Eastern Mediterranean. Atmospheric Chemistry and Physics, 2018, 18, 4069-4092.	1.9	12
69	Denitrification Is the Main Nitrous Oxide Source Process in Grassland Soils According to Quasiâ€“Continuous Isotopocule Analysis and Biogeochemical Modeling. Global Biogeochemical Cycles, 2020, 34, e2019GB006505.	1.9	11
70	The isotopic composition of atmospheric nitrous oxide observed at the high-altitude research station Jungfrauoch, Switzerland. Atmospheric Chemistry and Physics, 2020, 20, 6495-6519.	1.9	11
71	Absolute frequency referencing in the long wave infrared using a quantum cascade laser frequency comb. Optics Express, 2022, 30, 12891.	1.7	11
72	Swiss halocarbon emissions for 2019 to 2020 assessed from regional atmospheric observations. Atmospheric Chemistry and Physics, 2022, 22, 2447-2466.	1.9	11

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73	Emissions of tar-containing binders: a laboratory study. <i>Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering</i> , 2007, 42, 241-247.	0.9	10
74	Mid-IR spectrometer for mobile, real-time urban NO ₂ measurements. <i>Atmospheric Measurement Techniques</i> , 2018, 11, 2669-2681.	1.2	10
75	Multi-wavelength distributed feedback quantum cascade lasers for broadband trace gas spectroscopy. <i>Semiconductor Science and Technology</i> , 2019, 34, 083001.	1.0	10
76	Quantifying Isotopic Signatures of N ₂ O Using Quantum Cascade Laser Absorption Spectroscopy. <i>Chimia</i> , 2019, 73, 232.	0.3	9
77	Compact and lightweight mid-infrared laser spectrometer for balloon-borne water vapor measurements in the UTLS. <i>Atmospheric Measurement Techniques</i> , 2021, 14, 1365-1378.	1.2	9
78	First investigation and absolute calibration of clumped isotopes in N ₂ O by mid-infrared laser spectroscopy. <i>Rapid Communications in Mass Spectrometry</i> , 2020, 34, e8836.	0.7	7
79	Frequency axis for swept dual-comb spectroscopy with quantum cascade lasers. <i>Optics Letters</i> , 2022, 47, 625.	1.7	7
80	Advances in High-Precision NO ₂ Measurement by Quantum Cascade Laser Absorption Spectroscopy. <i>Applied Sciences (Switzerland)</i> , 2021, 11, 1222.	1.3	6
81	Human Breath Acetone Analysis by Mid-IR Laser Spectroscopy: Development and Application. , 2018, , .		4
82	Automated fragment formula annotation for electron ionisation, high resolution mass spectrometry: application to atmospheric measurements of halocarbons. <i>Journal of Cheminformatics</i> , 2021, 13, 78.	2.8	4
83	Quantum cascade laser absorption spectrometer with a low temperature multipass cell for precision clumped CO ₂ measurement. <i>Optics Express</i> , 2022, 30, 4631.	1.7	4
84	Hot-Recycling of Tar-Containing Asphalt Pavements. <i>Road Materials and Pavement Design</i> , 2010, 11, 29-46.	2.0	3
85	High-precision laser spectrometer for multiple greenhouse gas analysis in 1 µmL air from ice core samples. <i>Atmospheric Measurement Techniques</i> , 2020, 13, 6391-6406.	1.2	3
86	Emissions of tar-containing binders: Field studies. <i>Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering</i> , 2009, 44, 29-37.	0.9	2
87	Using Isotopic Fingerprints to Trace Nitrous Oxide in the Atmosphere. <i>Chimia</i> , 2017, 71, 46-46.	0.3	2
88	Photolytic fractionation of seven singly and doubly substituted nitrous oxide isotopocules measured by quantum cascade laser absorption spectroscopy. <i>Atmospheric Environment: X</i> , 2020, 8, 100094.	0.8	2
89	Long-term Observations of Atmospheric Halogenated Organic Trace Gases. <i>Chimia</i> , 2020, 74, 136.	0.3	2
90	Tracking New Halogenated Alkenes in the Atmosphere. <i>Chimia</i> , 2016, 70, 365.	0.3	2

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91	Benefit-Risk Assessment of Diesel Particle Filters (DPFs): An Analytical and a Toxicological Challenge. <i>Chimia</i> , 2015, 69, 152-152.	0.3	1
92	High-Resolution and Gapless Dual Comb Spectroscopy with Current-Tuned Quantum Cascade Lasers. , 2020, , .		1
93	Hot-Recycling of Tar-Containing Asphalt Pavements. Emission Measurements in the Laboratory and in the Field. <i>Road Materials and Pavement Design</i> , 2010, 11, 29-46.	2.0	1
94	Cylindrical multipass reflection cells for optical trace gas sensing. , 2015, , .		1
95	Mid-IR Laser Spectrometer for Balloon-borne Lower Stratospheric Water Vapor Measurements. , 2019, , .		1
96	High-Resolution and Gapless Dual Comb Spectroscopy with Current-Tuned Quantum Cascade Lasers for Environmental Applications. , 2020, , .		1
97	Clumped isotope signatures of nitrous oxide formed by bacterial denitrification. <i>Geochimica Et Cosmochimica Acta</i> , 2022, 328, 120-129.	1.6	1
98	Isotopic Ratio Measurements of Atmospheric Carbon Dioxide Using a 4.3 μm Pulsed Quantum Cascade Laser. , 2007, , .		0
99	Multi-Component Trace Gas Spectroscopy Using Dual-Wavelength Quantum Cascade Lasers. <i>Chimia</i> , 2015, 69, 708-708.	0.3	0
100	Highly Selective VOC Breath Analysis Using a 3.3 μm Broadly-Tunable VECSEL. , 2015, , .		0
101	Analysis of dual-section DFB-QCLs for spectroscopic applications. , 2016, , .		0
102	Dual-wavelength DFB quantum cascade lasers for NO and NO ₂ trace gas analysis. , 2017, , .		0
103	Mid-IR Laser Spectroscopy in Life Sciences: Medical and Forensic Applications. , 2018, , .		0
104	Dual-wavelength DFB quantum cascade lasers for multi-species trace gas spectroscopy. , 2018, , .		0
105	Spectral Interleaving with Quantum Cascade Laser Frequency Combs. , 2019, , .		0
106	Up in the air! Trace-gas sensing aboard flying platforms. , 2021, , .		0
107	High-precision trace gas measurements using quantum cascade lasers and novel star-like cell designs. , 2012, , .		0
108	MIR Spectroscopy beyond trace levels - environmental and industrial applications. , 2015, , .		0

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109	Multi-species Trace Gas Analysis with Dual-section DFB-QCLs. , 2016, , .		0
110	Application of Mid-IR VECSEL in Life Sciences: Highly Specific Acetone Analysis in Human Breath. , 2016, , .		0
111	Multi-species Trace Gas Analysis with Dual-wavelength DFB-QCLs. , 2017, , .		0
112	Multi-Species, High-Precision MIR Trace Gas Detection for Environmental Applications. , 2018, , .		0
113	QCL absorption spectroscopy for lightweight and multi-species environmental applications. , 2018, , .		0
114	Environmental and industrial trace gas sensing using quantum cascade lasers. , 2019, , .		0
115	Compact QCL Absorption Spectrometer for Balloon-borne Water Vapor Measurements in the Upper Atmosphere. , 2021, , .		0
116	Quantum cascade laser spectrometers for mobile trace-gas sensing. , 2020, , .		0
117	Gapless High-Resolution Dual Comb Spectroscopy with Current-Tuned Quantum Cascade Lasers. , 2020, , .		0
118	High-resolution spectroscopy with quantum cascade laser frequency combs. , 2022, , .		0
119	Step-Scan Tuning of Vernier Quantum-Cascade Lasers for Rapid Detection of Volatile Organic Molecules. , 2022, , .		0
120	High-Resolution Quantum Cascade Laser Dual-Comb Spectroscopy with Accurate Absolute Frequency Scale. , 2022, , .		0