

# Esther Baumann

## List of Publications by Year in descending order

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123  
papers

4,278  
citations

101543

36  
h-index

106344

65  
g-index

123  
all docs

123  
docs citations

123  
times ranked

2812  
citing authors

#	ARTICLE	IF	CITATIONS
1	20 years of developments in optical frequency comb technology and applications. Communications Physics, 2019, 2, .	5.3	436
2	Frequency-comb-based remote sensing of greenhouse gases over kilometer air paths. Optica, 2014, 1, 290.	9.3	296
3	High-coherence mid-infrared dual-comb spectroscopy spanning 2.6 to 5.2 $\mu\text{m}$ . Nature Photonics, 2018, 12, 202-208.	31.4	250
4	Optical two-way time and frequency transfer over free space. Nature Photonics, 2013, 7, 434-438.	31.4	233
5	Spectroscopy of the methane $\nu_2$ band with an accurate midinfrared coherent dual-comb spectrometer. Physical Review A, 2011, 84, .	2.5	209
6	Quantum Cascade Detectors. IEEE Journal of Quantum Electronics, 2009, 45, 1039-1052.	1.9	175
7	Invited Article: A compact optically coherent fiber frequency comb. Review of Scientific Instruments, 2015, 86, 081301.	1.3	170
8	GaN/AlN short-period superlattices for intersubband optoelectronics: A systematic study of their epitaxial growth, design, and performance. Journal of Applied Physics, 2008, 104, 093501.	2.5	165
9	Regional trace-gas source attribution using a field-deployed dual frequency comb spectrometer. Optica, 2018, 5, 320.	9.3	129
10	Direct-comb molecular spectroscopy with accurate, resolved comb teeth over 43 THz. Optics Letters, 2012, 37, 638.	3.3	121
11	Comb-calibrated frequency-modulated continuous-wave lidar for absolute distance measurements. Optics Letters, 2013, 38, 2026.	3.3	102
12	Comb-calibrated laser ranging for three-dimensional surface profiling with micrometer-level precision at a distance. Optics Express, 2014, 22, 24914.	3.4	101
13	High-performance, vibration-immune, fiber-laser frequency comb. Optics Letters, 2009, 34, 638.	3.3	98
14	Synchronization of Distant Optical Clocks at the Femtosecond Level. Physical Review X, 2016, 6, .	8.9	85
15	Accurate frequency referencing for fieldable dual-comb spectroscopy. Optics Express, 2016, 24, 30495.	3.4	77
16	Optical phase noise from atmospheric fluctuations and its impact on optical time-frequency transfer. Physical Review A, 2014, 89, .	2.5	76
17	Dual frequency comb laser absorption spectroscopy in a 16 MW gas turbine exhaust. Proceedings of the Combustion Institute, 2017, 36, 4565-4573.	3.9	73
18	Fast high-resolution spectroscopy of dynamic continuous-wave laser sources. Nature Photonics, 2010, 4, 853-857.	31.4	72

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19	Broad-band frequency references in the near-infrared: Accurate dual comb spectroscopy of methane and acetylene. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2013, 118, 26-39.	2.3	70
20	Mid-infrared dual-comb spectroscopy of volatile organic compounds across long open-air paths. <i>Optica</i> , 2019, 6, 165.	9.3	67
21	Synchronization of clocks through 12 km of strongly turbulent air over a city. <i>Applied Physics Letters</i> , 2016, 109, .	3.3	61
22	High-quality AlN/GaN-superlattice structures for the fabrication of narrow-band 1.4 μm photovoltaic intersubband detectors. <i>Applied Physics Letters</i> , 2006, 88, 121112.	3.3	60
23	In Ga As / Al As Sb quantum cascade detectors operating in the near infrared. <i>Applied Physics Letters</i> , 2007, 91, .	3.3	60
24	Midinfrared quantum cascade detector with a spectrally broad response. <i>Applied Physics Letters</i> , 2008, 93, .	3.3	55
25	Comparing Optical Oscillators across the Air to Milliradians in Phase and Frequency. <i>Physical Review Letters</i> , 2018, 120, 050801.	7.8	53
26	Microwave generation with low residual phase noise from a femtosecond fiber laser with an intracavity electro-optic modulator. <i>Optics Express</i> , 2011, 19, 24387.	3.4	52
27	Tight real-time synchronization of a microwave clock to an optical clock across a turbulent air path. <i>Optica</i> , 2016, 3, 441.	9.3	49
28	Mid-infrared quantum cascade detectors for applications in spectroscopy and pyrometry. <i>Applied Physics B: Lasers and Optics</i> , 2010, 100, 313-320.	2.2	43
29	1.6 μm quantum cascade detector using miniband transport. <i>Applied Physics Letters</i> , 2007, 90, 231111.	3.3	42
30	Dual-comb photoacoustic spectroscopy. <i>Nature Communications</i> , 2020, 11, 3152.	12.8	41
31	Intersubband photoconductivity at 1.6 μm using a strain-compensated AlN/GaN superlattice. <i>Applied Physics Letters</i> , 2005, 87, 191102.	3.3	40
32	Near infrared absorption and room temperature photovoltaic response in AlN/GaN superlattices grown by metal-organic vapor-phase epitaxy. <i>Applied Physics Letters</i> , 2006, 89, 041106.	3.3	40
33	Intersubband Transition-Based Processes and Devices in AlN/GaN-Based Heterostructures. <i>Proceedings of the IEEE</i> , 2010, 98, 1234-1248.	21.3	40
34	Broadband Phase Spectroscopy over Turbulent Air Paths. <i>Physical Review Letters</i> , 2015, 115, 103901.	7.8	40
35	Optically nonlinear effects in intersubband transitions of GaN/AlN-based superlattice structures. <i>Applied Physics Letters</i> , 2007, 91, 131115.	3.3	38
36	Electrically adjustable intersubband absorption of a GaN/AlN superlattice grown on a transistorlike structure. <i>Applied Physics Letters</i> , 2006, 89, 101121.	3.3	37

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37	Short wavelength (4 $\mu$ m) quantum cascade detector based on strain compensated InGaAs/InAlAs. Applied Physics Letters, 2008, 92, .	3.3	37
38	Coherent laser ranging for precision imaging through flames. Optica, 2018, 5, 988.	9.3	34
39	Speckle phase noise in coherent laser ranging: fundamental precision limitations. Optics Letters, 2014, 39, 4776.	3.3	33
40	Compact mid-infrared dual-comb spectrometer for outdoor spectroscopy. Optics Express, 2020, 28, 14740.	3.4	31
41	Tunneling effects and intersubband absorption in AlN/GaN superlattices. Applied Physics Letters, 2005, 86, 032110.	3.3	29
42	High frequency (f=2.37 $\mu$ m) room temperature operation of 1.55 $\mu$ m AlN/GaN-based intersubband detector. Electronics Letters, 2007, 43, 185.	1.0	29
43	Photodetectors based on intersubband transitions using III-nitride superlattice structures. Journal of Physics Condensed Matter, 2009, 21, 174208.	1.8	27
44	Characterizing Fast Arbitrary CW Waveforms With 1500 THz/s Instantaneous Chirps. IEEE Journal of Selected Topics in Quantum Electronics, 2012, 18, 228-238.	2.9	27
45	Lattice-Matched GaN/InAlN Waveguides at $\lambda=1.55 \mu\text{m}$ Grown by Metal-Organic Vapor Phase Epitaxy. IEEE Photonics Technology Letters, 2008, 20, 102-104.	2.5	25
46	Measurement of the impact of turbulence anisoplanatism on precision free-space optical time transfer. Physical Review A, 2019, 99, .	2.5	24
47	Fully self-referenced frequency comb consuming 5 watts of electrical power. OSA Continuum, 2018, 1, 274.	1.8	21
48	Single-Blind Quantification of Natural Gas Leaks from 1 km Distance Using Frequency Combs. Environmental Science & Technology, 2019, 53, 2908-2917.	10.0	20
49	A laser-induced fluorescence instrument for aircraft measurements of sulfur dioxide in the upper troposphere and lower stratosphere. Atmospheric Measurement Techniques, 2016, 9, 4601-4613.	3.1	19
50	Dual-comb spectroscopy with tailored spectral broadening in Si <sub>3</sub> N <sub>4</sub> nanophotonics. Optics Express, 2019, 27, 11869.	3.4	17
51	High frequency measurements on an AlN/GaN-based intersubband detector at 1550 and 780nm. Applied Physics Letters, 2008, 92, 231104.	3.3	16
52	The role of sulfur dioxide in stratospheric aerosol formation evaluated by using in situ measurements in the tropical lower stratosphere. Geophysical Research Letters, 2017, 44, 4280-4286.	4.0	16
53	Monolithically integrated AlGaIn/GaN/AlN-based solar-blind ultraviolet and near-infrared detectors. Electronics Letters, 2008, 44, 986.	1.0	15
54	Applications for quantum cascade lasers and detectors in mid-infrared high-resolution heterodyne astronomy. Applied Physics B: Lasers and Optics, 2008, 90, 187-190.	2.2	13

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55	Latest developments in GaN-based quantum devices for infrared optoelectronics. Journal of Materials Science: Materials in Electronics, 2008, 19, 821-827.	2.2	12
56	Ultrafast hole burning in intersubband absorption lines of GaN $\hat{\cdot}$ AlN superlattices. Applied Physics Letters, 2006, 89, 151103.	3.3	11
57	Femtosecond Timekeeping: Slip-Free Clockwork for Optical Timescales. Physical Review Applied, 2018, 9, .	3.8	10
58	10 $\hat{\text{A}}$ GHz generation with ultra-low phase noise via the transfer oscillator technique. APL Photonics, 2022, 7, .	5.7	9
59	MBE growth of nitride-based photovoltaic intersubband detectors. Superlattices and Microstructures, 2006, 40, 418-425.	3.1	7
60	Structural investigations of epitaxial InN by x-ray photoelectron diffraction and x-ray diffraction. Applied Physics Letters, 2007, 90, 191912.	3.3	5
61	Remote sensing using open-path dual-comb spectroscopy. , 2021, , 27-93.		5
62	III-Nitride Nanostructures for Infrared Optoelectronics. Acta Physica Polonica A, 2006, 110, 295-301.	0.5	4
63	Synchronization of optical oscillators over a free-space link at the femtosecond level. , 2015, , .		4
64	High-resolution Ranging of a Diffuse Target at Sub-Millisecond Intervals with a Calibrated FMCW Lidar. , 2012, , .		2
65	Optical system design for femtosecond-level synchronization of clocks. Proceedings of SPIE, 2016, , .	0.8	2
66	Dual-Comb Spectroscopy of Greenhouse Gases Over a 2-km Outdoor Path. , 2013, , .		2
67	Optical two-way time synchronization at the femtosecond level over a 4-km free space link. , 2015, , .		2
68	Nature of fiber-coupled detector responsivity measurements at 0.1% using a primary standard. Optics Express, 2020, 28, 15331.	3.4	2
69	GaN/AlN electro-optical modulator prototype at telecommunication wavelengths. Physica Status Solidi C: Current Topics in Solid State Physics, 2007, 4, 1621-1624.	0.8	1
70	Monolithically integrated UV/IR-photodetectors based on an AlN/GaN-based superlattice grown on an AlGaIn buffer layer. Physica Status Solidi C: Current Topics in Solid State Physics, 2009, 6, S818-S821.	0.8	1
71	Spectroscopy with a coherent dual frequency comb interferometer at 3.4 $\hat{\mu}$ m. Proceedings of SPIE, 2010, , .	0.8	1
72	Mid-infrared quantum cascade detectors for applications in spectroscopy and pyrometry. Proceedings of SPIE, 2010, , .	0.8	1

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73	Dual comb-based characterization of rapidly tuned lasers. , 2011, , .		1
74	Fiber laser welding of dual-phase galvanized sheet steel (DP590): traditional analysis and new quality assessment techniques. , 2016, , .		1
75	Fiber Laser Based Dual-Comb Spectroscopy with Dynamically Controlled Spectral Resolution. , 2021, , .		1
76	Mid-Infrared Dual Comb Spectroscopy of Propane. , 2017, , .		1
77	Dual-comb-based characterization of rapidly tuned lasers. , 2011, , .		1
78	Open-Path Dual-Comb Spectroscopy of Greenhouse Gases. , 2013, , .		1
79	Broadband Mid-Infrared Dual Comb Spectroscopy with Comb-Tooth Resolution and High Signal-To-Noise Ratio. , 2017, , .		1
80	Field deployment of a mid-infrared dual-comb spectrometer for measurement of volatile organic compounds. , 2020, , .		1
81	1.37 - 2.90 Micron Intersubband Transitions in GaN/AlN Superlattices. Materials Research Society Symposia Proceedings, 2006, 955, 1.	0.1	0
82	MBE growth of AlN/GaN-based photovoltaic intersubband photodetectors. Physica Status Solidi (A) Applications and Materials Science, 2008, 205, 1060-1063.	1.8	0
83	Performance improvement of AlN/GaN-based intersubband detectors thanks to quantum dot active regions. Proceedings of SPIE, 2010, , .	0.8	0
84	Microwave generation with low residual phase noise from a femtosecond fiber laser with an intracavity EOM. , 2011, , .		0
85	Dual-Comb Based Measurement of Frequency Agile Lasers. , 2011, , .		0
86	Precision spectroscopy with frequency combs at 3.4 $\mu$ m. , 2011, , .		0
87	Dual-comb techniques for precision measurement. , 2012, , .		0
88	A method for comparing remote optical clocks over a free-space optical link. , 2012, , .		0
89	Optical Combs for Sensor Applications. , 2014, , .		0
90	A Method to Achieve Targeted Repetition Rates for All-Fiber Mode-Locked Lasers. , 2014, , .		0

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91	CO <sub>2</sub> phase and amplitude spectra measured over 2 km outdoor path with a dual-comb spectrometer. , 2014, , .		0
92	Femtosecond-Level Synchronization Over Kilometer-Scale Turbulent Air Paths. , 2015, , .		0
93	Dual-Comb Spectrometer for Direct Phase Spectroscopy of Greenhouse Gases across an Open Air Path. , 2015, , .		0
94	Precision Atmospheric Trace Gas Monitoring with Frequency Comb Lasers. , 2015, , .		0
95	Free-space time and frequency transfer. , 2015, , .		0
96	Combustion Diagnostics and Chemical Sensing with Frequency Comb Lasers. , 2016, , .		0
97	Enhanced link availability for free space optical time-frequency transfer using adaptive optic terminals. , 2016, , .		0
98	Doppler-tolerant synchronization of clocks over free space at the femtosecond level. , 2017, , .		0
99	Novel Uses of Stabilized Optical Frequency Combs: From Regional Methane Leak Source Identification to Diagnostics for Extreme Combustion. , 2018, , .		0
100	High Resolution Frequency Comb Molecular Spectroscopy. , 2013, , .		0
101	Micrometer-precision 3D imaging at 4-meter standoff distance. , 2013, , .		0
102	Performance analysis of optical free-space two-way time-frequency transfer. , 2013, , .		0
103	Near-Infrared Dual-Comb Spectroscopy of Gases. , 2014, , .		0
104	Phase Spectroscopy of Atmospheric Gases across a 2-km Open-Air Path by Dual-Comb Spectroscopy. , 2015, , .		0
105	Femtosecond-Level Synchronization of Clocks across a Turbulent Open-Path Link. , 2015, , .		0
106	Comb-calibrated FMCW LADAR for Ranging and Imaging. , 2015, , .		0
107	Dual-Frequency Comb Measurements of Atmospheric Absorption: Comparison with HITRAN Database Parameters. , 2015, , .		0
108	Real-time Phase Correction for High-SNR Fieldable Dual-Comb Spectroscopy. , 2016, , .		0

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109	Optical Synchronization of Clocks across a 12-km Turbulent Air Path over a City. , 2016, , .		0
110	Dual Comb Outdoor Spectroscopy for Complex Molecular Response Retrieval. , 2016, , .		0
111	Spectral engineering of frequency combs using deposited waveguides. , 2016, , .		0
112	Remote Synchronization of a Microwave Clock to an Optical Clock at the Femtosecond Level. , 2016, , .		0
113	Compact Fiber Frequency Combs for Precision Measurement Outside the Metrology Lab. , 2018, , .		0
114	Open Path MIR DCS for Chemical Detection. , 2018, , .		0
115	A Compact Mid-infrared Dual-Comb Spectrometer with 1000 nm of Spectral Coverage. , 2019, , .		0
116	Imaging through Flames with Coherent Laser Ranging. , 2019, , .		0
117	Dual-comb spectroscopy with Si3N4 waveguides for gas spectroscopy in the 2.1-2.5 $\mu\text{m}$ water window. , 2019, , .		0
118	Measurement of acetone emission using a compact midinfrared dual-comb spectrometer. , 2019, , .		0
119	Mid-infrared Dual-comb Spectroscopy of Volatile Organic Compounds Across Long Open-air Paths. , 2019, , .		0
120	Measurement of Trace Gases from a Fracking Site Using Mid-Infrared Dual Comb Spectroscopy. , 2020, , .		0
121	28 km Open Path Dual-Comb Spectroscopy. , 2021, , .		0
122	A compact mid-infrared dual-comb spectrometer for field deployment. , 2020, , .		0
123	Open-path dual-comb spectroscopy in the 4.5 to 4.9 $\mu\text{m}$ region for multi-species detection. , 2020, , .		0