Hermann Detz

List of Publications by Year
in descending order

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153 papers	3,073 citations	172457 29 h-index	175258 52 g-index
155 all docs	155 docs citations	155 times ranked	3501 citing authors

#	Article	IF	Citations
1	Microcavity-Integrated Graphene Photodetector. Nano Letters, 2012, 12, 2773-2777.	9.1	753
2	Monolithically integrated mid-infrared lab-on-a-chip using plasmonics and quantum cascade structures. Nature Communications, 2014, 5, 4085.	12.8	155
3	Coherent injection locking of quantum cascade laser frequency combs. Nature Photonics, 2019, 13, 101-104.	31.4	116
4	Random lasers for broadband directional emission. Optica, 2016, 3, 1035.	9.3	86
5	High power terahertz quantum cascade lasers with symmetric wafer bonded active regions. Applied Physics Letters, 2013, 103, .	3.3	77
6	Measurement of bound states in the continuum by a detector embedded in a photonic crystal. Light: Science and Applications, 2016, 5, e16147-e16147.	16.6	73
7	Photonic crystal slab quantum well infrared photodetector. Applied Physics Letters, 2011, 98, .	3.3	62
8	Subwavelength micropillar array terahertz lasers. Optics Express, 2014, 22, 274.	3.4	62
9	Monolithic frequency comb platform based on interband cascade lasers and detectors. Optica, 2019, 6, 890.	9.3	61
10	Singular charge fluctuations at a magnetic quantum critical point. Science, 2020, 367, 285-288.	12.6	55
11	High performance InGaAs/GaAsSb terahertz quantum cascade lasers operating up to 142â€‰K. Applied Physics Letters, 2012, 101, 211117.	3.3	53
12	Diagonal-transition quantum cascade detector. Applied Physics Letters, 2014, 105, .	3.3	48
13	Vertically emitting terahertz quantum cascade ring lasers. Applied Physics Letters, 2009, 95, .	3.3	47
14	Terahertz quantum cascade lasers based on type II InGaAs/GaAsSb/InP. Applied Physics Letters, 2010, 97, 261110.	3.3	45
15	InAs based terahertz quantum cascade lasers. Applied Physics Letters, 2016, 108, .	3.3	40
16	A bi-functional quantum cascade device for same-frequency lasing and detection. Applied Physics Letters, 2012, 101, 191109.	3.3	39
17	Mid-infrared surface transmitting and detecting quantum cascade device for gas-sensing. Scientific Reports, 2016, 6, 21795.	3.3	38
18	Detectivity enhancement in quantum well infrared photodetectors utilizing a photonic crystal slab resonator. Optics Express, 2012, 20, 5622.	3.4	37

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19	Probing scattering mechanisms with symmetric quantum cascade lasers. Optics Express, 2013, 21, 7209.	3.4	35
20	InAs/AlAsSb based quantum cascade detector. Applied Physics Letters, 2015, 107, .	3.3	35
21	Barrier Height Tuning of Terahertz Quantum Cascade Lasers for High-Temperature Operation. ACS Photonics, 2018, 5, 4687-4693.	6.6	35
22	Terahertz Active Photonic Crystals for Condensed Gas Sensing. Sensors, 2011, 11, 6003-6014.	3.8	34
23	Far-Infrared Quantum Cascade Lasers Operating in the AlAs Phonon Reststrahlen Band. ACS Photonics, 2016, 3, 2280-2284.	6.6	34
24	43 Î¼m quantum cascade detector in pixel configuration. Optics Express, 2016, 24, 17041.	3.4	33
25	Thermoelectric-cooled terahertz quantum cascade lasers. Optics Express, 2019, 27, 20688.	3.4	33
26	Resonant metamaterial detectors based on THz quantum-cascade structures. Scientific Reports, 2014, 4, 4269.	3.3	32
27	Quantum cascade laser utilising aluminium-free material system: InGaAs/GaAsSb lattice-matched to InP. Electronics Letters, 2009, 45, 1031.	1.0	31
28	Ring cavity induced threshold reduction in single-mode surface emitting quantum cascade lasers. Applied Physics Letters, 2010, 96, 031111.	3.3	29
29	Monolithically Integrated Mid-Infrared Quantum Cascade Laser and Detector. Sensors, 2013, 13, 2196-2205.	3.8	29
30	Room-Temperature Quantum Ballistic Transport in Monolithic Ultrascaled Alâ€“Geâ€“Al Nanowire Heterostructures. Nano Letters, 2017, 17, 4556-4561.	9.1	29
31	Influence of thickness on crystallinity in wafer-scale GaTe nanolayers grown by molecular beam epitaxy. AIP Advances, 2017, 7, .	1.3	29
32	Picosecond pulses from a mid-infrared interband cascade laser. Optica, 2019, 6, 1334.	9.3	28
33	Dopant migration effects in terahertz quantum cascade lasers. Applied Physics Letters, 2013, 102, 201102.	3.3	26
34	Plasmonic lens enhanced mid-infrared quantum cascade detector. Applied Physics Letters, 2014, 105, 171112.	3.3	24
35	High performance bi-functional quantum cascade laser and detector. Applied Physics Letters, 2015, 107, .	3.3	24
36	Nucleation of Ga droplets on Si and SiOxsurfaces. Nanotechnology, 2015, 26, 315601.	2.6	24

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37	High-Power Growth-Robust InGaAs/InAlAs Terahertz Quantum Cascade Lasers. ACS Photonics, 2017, 4, 957-962.	6.6	22
38	Linearly polarized light from substrate emitting ring cavity quantum cascade lasers. Applied Physics Letters, 2013, 103, 081101.	3.3	21
39	Remote Sensing with Commutable Monolithic Laser and Detector. ACS Photonics, 2016, 3, 1794-1798.	6.6	21
40	High-power, low-lateral divergence broad area quantum cascade lasers with a tilted front facet. Applied Physics Letters, 2014, 104, .	3.3	20
41	Advanced gas sensors based on substrate-integrated hollow waveguides and dual-color ring quantum cascade lasers. Analyst, The, 2016, 141, 6202-6207.	3.5	20
42	Cyclic Carbonate Formation from Epoxides and CO₂ Catalyzed by Sustainable Alkali Halideâ€“Glycol Complexes: A DFT Study to Elucidate Reaction Mechanism and Catalytic Activity. ACS Omega, 2020, 5, 18064-18072.	3.5	20
43	Photonic crystal slab quantum cascade detector. Applied Physics Letters, 2013, 103, .	3.3	19
44	Grating-based far field modifications of ring quantum cascade lasers. Optics Express, 2014, 22, 15829.	3.4	19
45	All-optical adaptive control of quantum cascade random lasers. Nature Communications, 2020, 11, 5530.	12.8	19
46	Measuring the Optical Absorption of Single Nanowires. Physical Review Applied, 2020, 14, .	3.8	19
47	Influence of the facet type on the performance of terahertz quantum cascade lasers with double-metal waveguides. Applied Physics Letters, 2013, 102, 231121.	3.3	17
48	The influence of whispering gallery modes on the far field of ring lasers. Scientific Reports, 2015, 5, 16668.	3.3	17
49	DFT Study of GaN Clusters Decorated with Rh and Pt Nanoparticles for the Photochemical Reduction of CO₂. ACS Applied Energy Materials, 2022, 5, 4684-4690.	5.1	17
50	Incorporation of Sb and As in MBE grown GaAsxSb1âˆ’x layers. APL Materials, 2017, 5, .	5.1	16
51	The limit of quantum cascade detectors: A single period device. Applied Physics Letters, 2017, 111, .	3.3	16
52	Midinfrared intersubband absorption in InGaAs/GaAsSb multiple quantum wells. Applied Physics Letters, 2009, 95, 041102.	3.3	15
53	On-chip focusing in the mid-infrared: Demonstrated with ring quantum cascade lasers. Applied Physics Letters, 2014, 104, .	3.3	15
54	Monolithically integrated mid-infrared sensor using narrow mode operation and temperature feedback. Applied Physics Letters, 2015, 106, .	3.3	14

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55	Quantum cascade detector utilizing the diagonal-transition scheme for high quality cavities. Optics Express, 2015, 23, 6283.	3.4	14
56	Octave-spanning low-loss mid-IR waveguides based on semiconductor-loaded plasmonics. Optics Express, 2021, 29, 43567.	3.4	14
57	Intersubband optoelectronics in the InGaAs/GaAsSb material system. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2010, 28, C3G19-C3G23.	1.2	13
58	Growth rate dependence of boron incorporation into BxGa1â^'xAs layers. Journal of Crystal Growth, 2017, 477, 77-81.	1.5	12
59	Substrate-emitting ring interband cascade lasers. Applied Physics Letters, 2017, 111, .	3.3	12
60	InGaAs/GaAsSb/InP terahertz quantum cascade lasers. Journal of Infrared, Millimeter, and Terahertz Waves, 2013, 34, 374-385.	2.2	11
61	Evaluation of Material Systems for THz Quantum Cascade Laser Active Regions. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1800504.	1.8	11
62	Hydrogenation of CO₂ to methanol by the diphosphineâ€“ruthenium(<scp>ii</scp>) cationic complex: a DFT investigation to shed light on the decisive role of carboxylic acids as promoters. Catalysis Science and Technology, 2021, 11, 3556-3567.	4.1	11
63	Structure and mid-infrared optical properties of spin-coated polyethylene films developed for integrated photonics applications. Optical Materials Express, 2022, 12, 2168.	3.0	11
64	Si doping of MBE grown bulk GaAsSb on InP. Journal of Crystal Growth, 2011, 323, 42-44.	1.5	10
65	Lithography-free positioned GaAs nanowire growth with focused ion beam implantation of Ga. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2017, 35, .	1.2	10
66	Higher order modes in photonic crystal slabs. Optics Express, 2011, 19, 15990.	3.4	9
67	Modeling the elastic properties of the ternary IIIâ€“V alloys InGaAs, InAlAs and GaAsSb using Tersoff potentials for binary compounds. Semiconductor Science and Technology, 2013, 28, 085011.	2.0	9
68	Enhanced light output power of quantum cascade lasers from a tilted front facet. Optics Express, 2013, 21, 15869.	3.4	9
69	THz quantum cascade lasers with wafer bonded active regions. Optics Express, 2012, 20, 23832.	3.4	8
70	Focused ion beam implantation for the nucleation of self-catalyzed III-V nanowires. Microelectronic Engineering, 2017, 177, 93-97.	2.4	8
71	Color switching of a terahertz quantum cascade laser. Applied Physics Letters, 2019, 114, 191104.	3.3	8
72	Surface emitting ring quantum cascade lasers for chemical sensing. Optical Engineering, 2017, 57, 1.	1.0	8

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73	ÄŒerenkov-type phase-matched second-harmonic emission from GaAsâˆ•AlGaAs quantum-cascade lasers. Applied Physics Letters, 2008, 92, 111114.	3.3	7
74	Nonparabolicity effects in InGaAs/GaAsSb double barrier resonant tunneling diodes. Journal of Applied Physics, 2010, 108, 073707.	2.5	7
75	Electrical beam steering of Y-coupled quantum cascade lasers. Applied Physics Letters, 2010, 96, .	3.3	7
76	Enhanced Rashba effect in transverse magnetic fields observed on InGaAs/GaAsSb resonant tunneling diodes at temperatures up to Tâ€‰=â€‰180 K. Applied Physics Letters, 2011, 99, 152107.	3.3	7
77	Enhanced Crystal Quality of AlxIn1-xAsySb1-y for Terahertz Quantum Cascade Lasers. Photonics, 2016, 3, 20.	2.0	7
78	Ring quantum cascade lasers with twisted wavefronts. Scientific Reports, 2018, 8, 7998.	3.3	7
79	Quasi One-Dimensional Metalâ€“Semiconductor Heterostructures. Nano Letters, 2019, 19, 3892-3897.	9.1	7
80	Thermal-Dynamics Optimization of Terahertz Quantum Cascade Lasers with Different Barrier Compositions. Physical Review Applied, 2020, 14, .	3.8	7
81	Resonant tunneling diodes strongly coupled to the cavity field. Applied Physics Letters, 2020, 116, .	3.3	7
82	2.7 Î¼ m quantum cascade detector: Above band gap energy intersubband detection. Applied Physics Letters, 2022, 120, .	3.3	7
83	Mesoporous Zirconia Coating for Sensing Applications Using Attenuated Total Reflection Fourier Transform Infrared (ATR FT-IR) Spectroscopy. Applied Spectroscopy, 2022, 76, 141-149.	2.2	7
84	Optimized photonic crystal design for quantum well infrared photodetectors. Proceedings of SPIE, 2012, , .	0.8	6
85	From Photonic Crystal to Subwavelength Micropillar Array Terahertz Lasers. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 780-791.	2.9	6
86	Deep learning control of THz QCLs. Optics Express, 2021, 29, 23611.	3.4	6
87	Growth of one-dimensional IIIâ€“V structures on Si nanowires and pre-treated planar Si surfaces. Journal of Crystal Growth, 2009, 311, 1859-1862.	1.5	5
88	Quantum cascade lasers with a tilted facet utilizing the inherent polarization purity. Optics Express, 2014, 22, 26294.	3.4	5
89	Thermal expansion of IIIâ€“V materials in atomistic models using empirical Tersoff potentials. Electronics Letters, 2015, 51, 1455-1457.	1.0	5
90	Effect of barrier recess on transport and electrostatic interface properties of GaN-based normally-off and normally-on metal oxide semiconductor heterostructure field effect transistors. Solid-State Electronics, 2016, 125, 118-124.	1.4	5

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91	Scattering strength dependence of terahertz random lasers. Journal of Applied Physics, 2019, 125, 151611.	2.5	5
92	Improved InGaAs/GaAsSb quantum cascade laser active region designs. Journal of Modern Optics, 2011, 58, 2015-2020.	1.3	4
93	Atomistic modeling of bond lengths in random and ordered III-V alloys. Journal of Applied Physics, 2013, 114, 123508.	2.5	4
94	All-Electrical Thermal Monitoring of Terahertz Quantum Cascade Lasers. IEEE Photonics Technology Letters, 2014, 26, 1470-1473.	2.5	4
95	Spectrally resolved far-fields of terahertz quantum cascade lasers. Optics Express, 2016, 24, 25462.	3.4	4
96	Ring quantum cascade lasers with grating phase shifts and a light collimating dielectric metamaterial for enhanced infrared spectroscopy. Vibrational Spectroscopy, 2016, 84, 101-105.	2.2	4
97	Coherence and beam shaping in quantum cascade lasers. Proceedings of SPIE, 2009, , .	0.8	3
98	Superconducting Microdisk Cavities for THz Quantum Cascade Lasers. IEEE Transactions on Terahertz Science and Technology, 2012, 2, 550-555.	3.1	3
99	Towards nanowire-based terahertz quantum cascade lasers: prospects and technological challenges. Proceedings of SPIE, 2013, , .	0.8	3
100	InGaAs/GaAsSb based two-dimensional electron gases. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2014, 32, 02C104.	1.2	3
101	Photonic bandstructure engineering of THz quantum-cascade lasers. Applied Physics Letters, 2011, 99, 201103.	3.3	2
102	Rhodium Germanide Schottky Barrier Contacts. ECS Journal of Solid State Science and Technology, 2015, 4, P387-P392.	1.8	2
103	Atomistic modeling of interfaces in IIIâ€“V semiconductor superlattices. Physica Status Solidi (B): Basic Research, 2016, 253, 613-622.	1.5	2
104	THz Quantum Cascade Lasers. , 2018, , 597-624.		2
105	Influence of Boron Antisite Defects on the Electrical Properties of MBEâ€Grown GaAs Nanowires. Physica Status Solidi (B): Basic Research, 2019, 256, 1800368.	1.5	2
106	Improving size distribution of InAs quantum dots for intersubband devices. Journal of Crystal Growth, 2009, 311, 1799-1802.	1.5	1
107	An aluminum-free mid-infrared quantum cascade laser. , 2010, , .		1
108	InGaAs/GaAsSb Terahertz Quantum Cascade Lasers. , 2011, , .		1

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109	Large Rashba effect in GaAsSb/InGaAs RTDs at high temperatures. Journal of the Korean Physical Society, 2012, 60, 1762-1766.	0.7	1
110	Schottky diode formation in GaAs nanowires by heterogeneous contact deposition. Materials Today: Proceedings, 2017, 4, 7101-7106.	1.8	1
111	Nonlinear wave-mixing in twin-waveguide GaAs/AlGaAs quantum cascade lasers. Journal of Modern Optics, 2008, 55, 3211-3217.	1.3	0
112	Beam Shaping in Quantum Cascade Ring Lasers. , 2009, , .		0
113	InGaAs/GaAsSb Heterostructures: Aluminum-Free Intersubband Devices. Materials Research Society Symposia Proceedings, 2009, 1195, 262.	0.1	0
114	A new aluminum-free material system for intersubband emitters and detectors. Journal of Physics: Conference Series, 2009, 193, 012065.	0.4	0
115	Surface-emitting terahertz quantum cascade ring lasers. Proceedings of SPIE, 2010, , .	0.8	0
116	Ring resonator-based surface emitting quantum cascade lasers. Proceedings of SPIE, 2010, , .	0.8	0
117	Photonic crystal band edge and defect states in the spectral response of intersubband detectors. , 2010, , .		0
118	Grating-Induced Beam-Tuning in Quantum Cascade Ring Lasers. , 2010, , .		0
119	MBE Growth of GaAs Whiskers on Si Nanowires. , 2010, , .		0
120	Terahertz quantum cascade laser in the InGaAs/GaAsSb material system. , 2010, , .		0
121	Two Dimensional Integration of Ring Cavity Surface Emitting Quantum Cascade Lasers. , 2011, , .		0
122	Rashba Effect in Non-Magnetic InGaAsâˆ•GaAsSb Resonant Tunneling Diodes Enhanced By Transverse Magnetic Field. , 2011, , .		0
123	Temperature-induced beam steering of Y-coupled quantum cascade lasers. , 2011, , .		0
124	Progress on InGaAs/GaAsSb based terahertz quantum cascade lasers. , 2011, , .		0
125	Superconducting waveguides for terahertz quantum cascade lasers. , 2011, , .		0
126	Active photonic crystal terahertz laser operating in upper bands. , 2011, , .		0

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127	New concepts and geometries for graphene-based photodetectors. , 2012, , .		0
128	Facet reflectivity reduction of quantum cascade lasers by tilted facets. , 2012, , .		0
129	Increased Detectivity and Operation Temperature in Photonic Crystal Slab Quantum Well Photodetectors. , 2012, , .		0
130	Upper band operation of active photonic crystal terahertz lasers. , 2012, , .		0
131	Fabrication and characterization of terahertz emitting GaAs/AlGaAs micropillar quantum cascade structures in a double metal waveguide. , 2013, , .		0
132	Polarization versatility of surface emitting ring cavity quantum cascade lasers. , 2013, , .		0
133	Exceptional points in coupled microdisk THz quantum cascade lasers. , 2013, , .		0
134	Parametric polariton scattering in quantum wires and coupled planar microcavities. , 2013, , .		0
135	Multi-cavity terahertz quantum cascade lasers. , 2013, , .		0
136	Towards mid-infrared on-chip sensing utilizing a bi-functional quantum cascade laser/detector. , 2013, , .		0
137	2.5 D photonic crystal quantum cascade detector. , 2014, , .		0
138	High power THz quantum cascade lasers based on novel materials and designs. , 2014, , .		0
139	Resonant intersubband plasmon induced current in InGaAs quantum wells on GaAs. Applied Physics Letters, 2014, 104, 122101.	3.3	0
140	Metropolis Monte Carlo based Relaxation of Atomistic III-V Semiconductor Models. IFAC-PapersOnLine, 2015, 48, 550-555.	0.9	0
141	Inverse bandstructure engineering of alternative barrier materials for InGaAs-based terahertz quantum cascade lasers. , 2017, , .		0
142	Interband and Quantum Cascade Laser Frequency Combs: From Physics to Monolithic Integration. , 2019, , .		0
143	Ring Interband Cascade Lasers for Environmental Monitoring. , 2019, , .		0
144	Laser Level Selection in Terahertz Quantum Cascade Lasers. , 2019, , .		0

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145	Towards Holistic Control of THz Quantum Cascade Random Lasers. , 2021, , .		0
146	All-Optical Control of Quantum Cascade Random Lasers Enhanced by Deep Learning. , 2021, , .		0
147	Low loss dielectric loaded plasmonic waveguides for sensing applications above nine microns. , 2021, , .		0
148	Reduced Threshold and High Temperature Operation in Single-Mode Ring Cavity Surface Emitting Quantum Cascade Lasers. , 2010, , .		0
149	Active photonic crystal terahertz laser operating in higher bands. , 2011, , .		0
150	Resonant Metamaterial Detectors Utilizing THz Quantum-Cascade Lasers. , 2012, , .		0
151	Terahertz Quantum Cascade Lasers with Symmetric Active Regions. , 2012, , .		0
152	Monolithic Absorption Sensors Based on Bi-functional Quantum Cascade Structures. , 2015, , .		0
153	Highly Integrated Gas Sensors based on Bi-functional Quantum Cascade Structures. , 2016, , .		0