Hermann Detz

List of Publications by Year
in descending order

153 papers	3,073 citations	172386 29 h-index	175177 52 g-index
155 all docs	155 docs citations	155 times ranked	3501 citing authors

#	Article	IF	Citations
1	2.7 Î¼ m quantum cascade detector: Above band gap energy intersubband detection. Applied Physics Letters, 2022, 120, .	1.5	7
2	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.	2.5	17
3	Mesoporous Zirconia Coating for Sensing Applications Using Attenuated Total Reflection Fourier Transform Infrared (ATR FT-IR) Spectroscopy. Applied Spectroscopy, 2022, 76, 141-149.	1.2	7
4	Structure and mid-infrared optical properties of spin-coated polyethylene films developed for integrated photonics applications. Optical Materials Express, 2022, 12, 2168.	1.6	11
5	Towards Holistic Control of THz Quantum Cascade Random Lasers. , 2021, , .		0
6	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.	2.1	11
7	All-Optical Control of Quantum Cascade Random Lasers Enhanced by Deep Learning. , 2021, , .		0
8	Low loss dielectric loaded plasmonic waveguides for sensing applications above nine microns. , 2021, , .		0
9	Deep learning control of THz QCLs. Optics Express, 2021, 29, 23611.	1.7	6
10	Octave-spanning low-loss mid-IR waveguides based on semiconductor-loaded plasmonics. Optics Express, 2021, 29, 43567.	1.7	14
11	All-optical adaptive control of quantum cascade random lasers. Nature Communications, 2020, 11, 5530.	5.8	19
12	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.	1.6	20
13	Measuring the Optical Absorption of Single Nanowires. Physical Review Applied, 2020, 14, .	1.5	19
14	Thermal-Dynamics Optimization of Terahertz Quantum Cascade Lasers with Different Barrier Compositions. Physical Review Applied, 2020, 14, .	1.5	7
15	Resonant tunneling diodes strongly coupled to the cavity field. Applied Physics Letters, 2020, 116, .	1.5	7
16	Singular charge fluctuations at a magnetic quantum critical point. Science, 2020, 367, 285-288.	6.0	55
17	Evaluation of Material Systems for THz Quantum Cascade Laser Active Regions. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1800504.	0.8	11
18	Interband and Quantum Cascade Laser Frequency Combs: From Physics to Monolithic Integration. , 2019, , .		0

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19	Ring Interband Cascade Lasers for Environmental Monitoring. , 2019, , .		0
20	Laser Level Selection in Terahertz Quantum Cascade Lasers. , 2019, , .		0
21	Quasi One-Dimensional Metalâ€“Semiconductor Heterostructures. Nano Letters, 2019, 19, 3892-3897.	4.5	7
22	Color switching of a terahertz quantum cascade laser. Applied Physics Letters, 2019, 114, 191104.	1.5	8
23	Scattering strength dependence of terahertz random lasers. Journal of Applied Physics, 2019, 125, 151611.	1.1	5
24	Coherent injection locking of quantum cascade laser frequency combs. Nature Photonics, 2019, 13, 101-104.	15.6	116
25	Influence of Boron Antisite Defects on the Electrical Properties of MBEâ€Grown GaAs Nanowires. Physica Status Solidi (B): Basic Research, 2019, 256, 1800368.	0.7	2
26	Thermoelectric-cooled terahertz quantum cascade lasers. Optics Express, 2019, 27, 20688.	1.7	33
27	Monolithic frequency comb platform based on interband cascade lasers and detectors. Optica, 2019, 6, 890.	4.8	61
28	Picosecond pulses from a mid-infrared interband cascade laser. Optica, 2019, 6, 1334.	4.8	28
29	Barrier Height Tuning of Terahertz Quantum Cascade Lasers for High-Temperature Operation. ACS Photonics, 2018, 5, 4687-4693.	3.2	35
30	Ring quantum cascade lasers with twisted wavefronts. Scientific Reports, 2018, 8, 7998.	1.6	7
31	THz Quantum Cascade Lasers. , 2018, , 597-624.		2
32	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, .	0.6	10
33	Incorporation of Sb and As in MBE grown GaAsxSb1â^'x layers. APL Materials, 2017, 5, .	2.2	16
34	High-Power Growth-Robust InGaAs/InAlAs Terahertz Quantum Cascade Lasers. ACS Photonics, 2017, 4, 957-962.	3.2	22
35	Growth rate dependence of boron incorporation into BxGa1â^'xAs layers. Journal of Crystal Growth, 2017, 477, 77-81.	0.7	12
36	Focused ion beam implantation for the nucleation of self-catalyzed III-V nanowires. Microelectronic Engineering, 2017, 177, 93-97.	1.1	8

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37	Substrate-emitting ring interband cascade lasers. Applied Physics Letters, 2017, 111, .	1.5	12
38	Room-Temperature Quantum Ballistic Transport in Monolithic Ultrascaled Alâ€“Geâ€“Al Nanowire Heterostructures. Nano Letters, 2017, 17, 4556-4561.	4.5	29
39	The limit of quantum cascade detectors: A single period device. Applied Physics Letters, 2017, 111, .	1.5	16
40	Schottky diode formation in GaAs nanowires by heterogeneous contact deposition. Materials Today: Proceedings, 2017, 4, 7101-7106.	0.9	1
41	Influence of thickness on crystallinity in wafer-scale GaTe nanolayers grown by molecular beam epitaxy. AIP Advances, 2017, 7, .	0.6	29
42	Inverse bandstructure engineering of alternative barrier materials for InGaAs-based terahertz quantum cascade lasers. , 2017, , .		0
43	Surface emitting ring quantum cascade lasers for chemical sensing. Optical Engineering, 2017, 57, 1.	0.5	8
44	Enhanced Crystal Quality of AlxIn1-xAsySb1-y for Terahertz Quantum Cascade Lasers. Photonics, 2016, 3, 20.	0.9	7
45	Random lasers for broadband directional emission. Optica, 2016, 3, 1035.	4.8	86
46	Spectrally resolved far-fields of terahertz quantum cascade lasers. Optics Express, 2016, 24, 25462.	1.7	4
47	InAs based terahertz quantum cascade lasers. Applied Physics Letters, 2016, 108, .	1.5	40
48	Far-Infrared Quantum Cascade Lasers Operating in the AlAs Phonon Reststrahlen Band. ACS Photonics, 2016, 3, 2280-2284.	3.2	34
49	Advanced gas sensors based on substrate-integrated hollow waveguides and dual-color ring quantum cascade lasers. Analyst, The, 2016, 141, 6202-6207.	1.7	20
50	43 Î¼m quantum cascade detector in pixel configuration. Optics Express, 2016, 24, 17041.	1.7	33
51	Atomistic modeling of interfaces in IIIâ€“V semiconductor superlattices. Physica Status Solidi (B): Basic Research, 2016, 253, 613-622.	0.7	2
52	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.	0.8	5
53	Measurement of bound states in the continuum by a detector embedded in a photonic crystal. Light: Science and Applications, 2016, 5, e16147-e16147.	7.7	73
54	Remote Sensing with Commutable Monolithic Laser and Detector. ACS Photonics, 2016, 3, 1794-1798.	3.2	21

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55	Mid-infrared surface transmitting and detecting quantum cascade device for gas-sensing. Scientific Reports, 2016, 6, 21795.	1.6	38
56	Ring quantum cascade lasers with grating phase shifts and a light collimating dielectric metamaterial for enhanced infrared spectroscopy. Vibrational Spectroscopy, 2016, 84, 101-105.	1.2	4
57	Highly Integrated Gas Sensors based on Bi-functional Quantum Cascade Structures. , 2016, , .		0
58	The influence of whispering gallery modes on the far field of ring lasers. Scientific Reports, 2015, 5, 16668.	1.6	17
59	High performance bi-functional quantum cascade laser and detector. Applied Physics Letters, 2015, 107, .	1.5	24
60	Nucleation of Ga droplets on Si and SiOxsurfaces. Nanotechnology, 2015, 26, 315601.	1.3	24
61	Rhodium Germanide Schottky Barrier Contacts. ECS Journal of Solid State Science and Technology, 2015, 4, P387-P392.	0.9	2
62	InAs/AlAsSb based quantum cascade detector. Applied Physics Letters, 2015, 107, .	1.5	35
63	Thermal expansion of IIIâ€“V materials in atomistic models using empirical Tersoff potentials. Electronics Letters, 2015, 51, 1455-1457.	0.5	5
64	Monolithically integrated mid-infrared sensor using narrow mode operation and temperature feedback. Applied Physics Letters, 2015, 106, .	1.5	14
65	Metropolis Monte Carlo based Relaxation of Atomistic III-V Semiconductor Models. IFAC-PapersOnLine, 2015, 48, 550-555.	0.5	0
66	From Photonic Crystal to Subwavelength Micropillar Array Terahertz Lasers. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 780-791.	1.9	6
67	Quantum cascade detector utilizing the diagonal-transition scheme for high quality cavities. Optics Express, 2015, 23, 6283.	1.7	14
68	Monolithic Absorption Sensors Based on Bi-functional Quantum Cascade Structures. , 2015, , .		0
69	2.5 D photonic crystal quantum cascade detector. , 2014, , .		0
70	All-Electrical Thermal Monitoring of Terahertz Quantum Cascade Lasers. IEEE Photonics Technology Letters, 2014, 26, 1470-1473.	1.3	4
71	High power THz quantum cascade lasers based on novel materials and designs. , 2014, , .		0
72	InGaAs/GaAsSb based two-dimensional electron gases. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2014, 32, 02C104.	0.6	3

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73	Quantum cascade lasers with a tilted facet utilizing the inherent polarization purity. Optics Express, 2014, 22, 26294.	1.7	5
74	Subwavelength micropillar array terahertz lasers. Optics Express, 2014, 22, 274.	1.7	62
75	Grating-based far field modifications of ring quantum cascade lasers. Optics Express, 2014, 22, 15829.	1.7	19
76	On-chip focusing in the mid-infrared: Demonstrated with ring quantum cascade lasers. Applied Physics Letters, 2014, 104, .	1.5	15
77	High-power, low-lateral divergence broad area quantum cascade lasers with a tilted front facet. Applied Physics Letters, 2014, 104, .	1.5	20
78	Diagonal-transition quantum cascade detector. Applied Physics Letters, 2014, 105, .	1.5	48
79	Plasmonic lens enhanced mid-infrared quantum cascade detector. Applied Physics Letters, 2014, 105, 171112.	1.5	24
80	Resonant intersubband plasmon induced current in InGaAs quantum wells on GaAs. Applied Physics Letters, 2014, 104, 122101.	1.5	0
81	Monolithically integrated mid-infrared lab-on-a-chip using plasmonics and quantum cascade structures. Nature Communications, 2014, 5, 4085.	5.8	155
82	Resonant metamaterial detectors based on THz quantum-cascade structures. Scientific Reports, 2014, 4, 4269.	1.6	32
83	Linearly polarized light from substrate emitting ring cavity quantum cascade lasers. Applied Physics Letters, 2013, 103, 081101.	1.5	21
84	InGaAs/GaAsSb/InP terahertz quantum cascade lasers. Journal of Infrared, Millimeter, and Terahertz Waves, 2013, 34, 374-385.	1.2	11
85	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.	1.0	9
86	Photonic crystal slab quantum cascade detector. Applied Physics Letters, 2013, 103, .	1.5	19
87	Fabrication and characterization of terahertz emitting GaAs/AlGaAs micropillar quantum cascade structures in a double metal waveguide. , 2013, , .		0
88	Polarization versatility of surface emitting ring cavity quantum cascade lasers. , 2013, , .		0
89	Influence of the facet type on the performance of terahertz quantum cascade lasers with double-metal waveguides. Applied Physics Letters, 2013, 102, 231121.	1.5	17
90	Dopant migration effects in terahertz quantum cascade lasers. Applied Physics Letters, 2013, 102, 201102.	1.5	26

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91	Probing scattering mechanisms with symmetric quantum cascade lasers. Optics Express, 2013, 21, 7209.	1.7	35
92	Enhanced light output power of quantum cascade lasers from a tilted front facet. Optics Express, 2013, 21, 15869.	1.7	9
93	Towards nanowire-based terahertz quantum cascade lasers: prospects and technological challenges. Proceedings of SPIE, 2013, , .	0.8	3
94	Monolithically Integrated Mid-Infrared Quantum Cascade Laser and Detector. Sensors, 2013, 13, 2196-2205.	2.1	29
95	Exceptional points in coupled microdisk THz quantum cascade lasers. , 2013, , .		0
96	Parametric polariton scattering in quantum wires and coupled planar microcavities. , 2013, , .		0
97	High power terahertz quantum cascade lasers with symmetric wafer bonded active regions. Applied Physics Letters, 2013, 103, .	1.5	77
98	Multi-cavity terahertz quantum cascade lasers. , 2013, , .		0
99	Atomistic modeling of bond lengths in random and ordered III-V alloys. Journal of Applied Physics, 2013, 114, 123508.	1.1	4
100	Towards mid-infrared on-chip sensing utilizing a bi-functional quantum cascade laser/detector. , 2013, , .		0
101	Optimized photonic crystal design for quantum well infrared photodetectors. Proceedings of SPIE, 2012, , .	0.8	6
102	New concepts and geometries for graphene-based photodetectors. , 2012, , .		0
103	Facet reflectivity reduction of quantum cascade lasers by tilted facets. , 2012, , .		0
104	THz quantum cascade lasers with wafer bonded active regions. Optics Express, 2012, 20, 23832.	1.7	8
105	Detectivity enhancement in quantum well infrared photodetectors utilizing a photonic crystal slab resonator. Optics Express, 2012, 20, 5622.	1.7	37
106	Increased Detectivity and Operation Temperature in Photonic Crystal Slab Quantum Well Photodetectors. , 2012, , .		0
107	Superconducting Microdisk Cavities for THz Quantum Cascade Lasers. IEEE Transactions on Terahertz Science and Technology, 2012, 2, 550-555.	2.0	3
108	Large Rashba effect in GaAsSb/InGaAs RTDs at high temperatures. Journal of the Korean Physical Society, 2012, 60, 1762-1766.	0.3	1

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109	High performance InGaAs/GaAsSb terahertz quantum cascade lasers operating up to 142â€‰K. Applied Physics Letters, 2012, 101, 211117.	1.5	53
110	A bi-functional quantum cascade device for same-frequency lasing and detection. Applied Physics Letters, 2012, 101, 191109.	1.5	39
111	Upper band operation of active photonic crystal terahertz lasers. , 2012, , .		0
112	Microcavity-Integrated Graphene Photodetector. Nano Letters, 2012, 12, 2773-2777.	4.5	753
113	Resonant Metamaterial Detectors Utilizing THz Quantum-Cascade Lasers. , 2012, , .		0
114	Terahertz Quantum Cascade Lasers with Symmetric Active Regions. , 2012, , .		0
115	Photonic bandstructure engineering of THz quantum-cascade lasers. Applied Physics Letters, 2011, 99, 201103.	1.5	2
116	Improved InGaAs/GaAsSb quantum cascade laser active region designs. Journal of Modern Optics, 2011, 58, 2015-2020.	0.6	4
117	Higher order modes in photonic crystal slabs. Optics Express, 2011, 19, 15990.	1.7	9
118	Two Dimensional Integration of Ring Cavity Surface Emitting Quantum Cascade Lasers. , 2011, , .		0
119	Rashba Effect in Non-Magnetic InGaAsâ•GaAsSb Resonant Tunneling Diodes Enhanced By Transverse Magnetic Field. , 2011, , .		0
120	InGaAs/GaAsSb Terahertz Quantum Cascade Lasers. , 2011, , .		1
121	Temperature-induced beam steering of Y-coupled quantum cascade lasers. , 2011, , .		0
122	Si doping of MBE grown bulk GaAsSb on InP. Journal of Crystal Growth, 2011, 323, 42-44.	0.7	10
123	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.	1.5	7
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	Photonic crystal slab quantum well infrared photodetector. Applied Physics Letters, 2011, 98, .	1.5	62
128	Terahertz Active Photonic Crystals for Condensed Gas Sensing. Sensors, 2011, 11, 6003-6014.	2.1	34
129	Active photonic crystal terahertz laser operating in higher bands. , 2011, , .		0
130	Surface-emitting terahertz quantum cascade ring lasers. Proceedings of SPIE, 2010, , .	0.8	0
131	Ring resonator-based surface emitting quantum cascade lasers. Proceedings of SPIE, 2010, , .	0.8	0
132	Photonic crystal band edge and defect states in the spectral response of intersubband detectors. , 2010, , .		0
133	An aluminum-free mid-infrared quantum cascade laser. , 2010, , .		1
134	Grating-Induced Beam-Tuning in Quantum Cascade Ring Lasers. , 2010, , .		0
135	Nonparabolicity effects in InGaAs/GaAsSb double barrier resonant tunneling diodes. Journal of Applied Physics, 2010, 108, 073707.	1.1	7
136	Electrical beam steering of Y-coupled quantum cascade lasers. Applied Physics Letters, 2010, 96, .	1.5	7
137	Ring cavity induced threshold reduction in single-mode surface emitting quantum cascade lasers. Applied Physics Letters, 2010, 96, 031111.	1.5	29
138	Intersubband optoelectronics in the InGaAs/GaAsSb material system. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2010, 28, C3G19-C3G23.	0.6	13
139	MBE Growth of GaAs Whiskers on Si Nanowires. , 2010, , .		0
140	Terahertz quantum cascade lasers based on type II InGaAs/GaAsSb/InP. Applied Physics Letters, 2010, 97, 261110.	1.5	45
141	Terahertz quantum cascade laser in the InGaAs/GaAsSb material system. , 2010, , .		0
142	Reduced Threshold and High Temperature Operation in Single-Mode Ring Cavity Surface Emitting Quantum Cascade Lasers. , 2010, , .		0
143	Beam Shaping in Quantum Cascade Ring Lasers. , 2009, , .		0
144	Midinfrared intersubband absorption in InGaAs/GaAsSb multiple quantum wells. Applied Physics Letters, 2009, 95, 041102.	1.5	15

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145	InGaAs/GaAsSb Heterostructures: Aluminum-Free Intersubband Devices. Materials Research Society Symposia Proceedings, 2009, 1195, 262.	0.1	0
146	Coherence and beam shaping in quantum cascade lasers. Proceedings of SPIE, 2009, , .	0.8	3
147	Quantum cascade laser utilising aluminium-free material system: InGaAs/GaAsSb lattice-matched to InP. Electronics Letters, 2009, 45, 1031.	0.5	31
148	Growth of one-dimensional IIIâ€“V structures on Si nanowires and pre-treated planar Si surfaces. Journal of Crystal Growth, 2009, 311, 1859-1862.	0.7	5
149	Improving size distribution of InAs quantum dots for intersubband devices. Journal of Crystal Growth, 2009, 311, 1799-1802.	0.7	1
150	Vertically emitting terahertz quantum cascade ring lasers. Applied Physics Letters, 2009, 95, .	1.5	47
151	A new aluminum-free material system for intersubband emitters and detectors. Journal of Physics: Conference Series, 2009, 193, 012065.	0.3	0
152	ÄŒerenkov-type phase-matched second-harmonic emission from GaAsâ•AlGaAs quantum-cascade lasers. Applied Physics Letters, 2008, 92, 111114.	1.5	7
153	Nonlinear wave-mixing in twin-waveguide GaAs/AlGaAs quantum cascade lasers. Journal of Modern Optics, 2008, 55, 3211-3217.	0.6	0