Takashi Asano

List of Publications by Year
in descending order

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110 papers	9,947 citations	81900 39 h-index	46799 89 g-index
110 all docs	110 docs citations	110 times ranked	5864 citing authors

#	Article	IF	Citations
1	High-Q photonic nanocavity in a two-dimensional photonic crystal. Nature, 2003, 425, 944-947.	27.8	2,493
2	Ultra-high-Q photonic double-heterostructure nanocavity. Nature Materials, 2005, 4, 207-210.	27.5	1,246
3	Spontaneous-emission control by photonic crystals and nanocavities. Nature Photonics, 2007, 1, 449-458.	31.4	842
4	Fine-tuned high-Q photonic-crystal nanocavity. Optics Express, 2005, 13, 1202.	3.4	488
5	Photonic Devices Based on In-Plane Hetero Photonic Crystals. Science, 2003, 300, 1537-1537.	12.6	282
6	Conversion of broadband to narrowband thermal emission through energy recycling. Nature Photonics, 2012, 6, 535-539.	31.4	256
7	Dynamic control of the Q factor in a photonic crystal nanocavity. Nature Materials, 2007, 6, 862-865.	27.5	241
8	Strong coupling between distant photonic nanocavities and its dynamic control. Nature Photonics, 2012, 6, 56-61.	31.4	219
9	A micrometre-scale Raman silicon laser with a microwatt threshold. Nature, 2013, 498, 470-474.	27.8	218
10	Analysis of the experimental Q factors (~ 1 million) of photonic crystal nanocavities. Optics Express, 2006, 14, 1996.	3.4	205
11	Photonic crystal nanocavity with a Q-factor of ~9 million. Optics Express, 2014, 22, 916.	3.4	173
12	High-Q nanocavity with a 2-ns photon lifetime. Optics Express, 2007, 15, 17206.	3.4	168
13	Photonic crystal nanocavity with a Q factor exceeding eleven million. Optics Express, 2017, 25, 1769.	3.4	156
14	Optimization of photonic crystal nanocavities based on deep learning. Optics Express, 2018, 26, 32704.	3.4	144
15	In-plane-type channel drop filter in a two-dimensional photonic crystal slab. Applied Physics Letters, 2004, 84, 2226-2228.	3.3	136
16	Investigation of high-Q channel drop filters using donor-type defects in two-dimensional photonic crystal slabs. Applied Physics Letters, 2003, 83, 1512-1514.	3.3	126
17	Theoretical investigation of a two-dimensional photonic crystal slab with truncated cone air holes. Applied Physics Letters, 2003, 82, 1661-1663.	3.3	125
18	Ultrahigh-Q Nanocavities in Two-Dimensional Photonic Crystal Slabs. IEEE Journal of Selected Topics in Quantum Electronics, 2006, 12, 1123-1134.	2.9	115

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19	Design of Photonic Crystal Nanocavity With Q-Factor of ${{sim}10^{9}}$. Journal of Lightwave Technology, 2008, 26, 1532-1539.	4.6	112
20	Design of a channel drop filter by using a donor-type cavity with high-quality factor in a two-dimensional photonic crystal slab. Applied Physics Letters, 2003, 82, 1341-1343.	3.3	101
21	Demonstration of two-dimensional photonic crystals based on silicon carbide. Optics Express, 2011, 19, 11084.	3.4	99
22	Statistical studies of photonic heterostructure nanocavities with an average Q factor of three million. Optics Express, 2011, 19, 11916.	3.4	97
23	Effects of fluctuation in air hole radii and positions on optical characteristics in photonic crystal heterostructure nanocavities. Physical Review B, 2009, 79, .	3.2	86
24	Two-dimensional photonic-crystal-slab channel-drop filter with flat-top response. Optics Express, 2005, 13, 2512.	3.4	85
25	Ultrahigh-Q photonic crystal nanocavities based on 4H silicon carbide. Optica, 2019, 6, 991.	9.3	78
26	Highly efficient in-plane channel drop filter in a two-dimensional heterophotonic crystal. Applied Physics Letters, 2005, 86, 241101.	3.3	75
27	One-Chip Near-Field Thermophotovoltaic Device Integrating a Thin-Film Thermal Emitter and Photovoltaic Cell. Nano Letters, 2019, 19, 3948-3952.	9.1	75
28	Second-harmonic generation in a silicon-carbide-based photonic crystal nanocavity. Optics Letters, 2014, 39, 1768.	3.3	72
29	Single-peak narrow-bandwidth mid-infrared thermal emitters based on quantum wells and photonic crystals. Applied Physics Letters, 2013, 102, .	3.3	71
30	Experimental demonstration of complete photonic band gap in two-dimensional photonic crystal slabs. Applied Physics Letters, 2005, 87, 061107.	3.3	65
31	Time-domain measurement of picosecond light-pulse propagation in a two-dimensional photonic crystal-slab waveguide. Applied Physics Letters, 2004, 84, 4690-4692.	3.3	62
32	Near-infraredâ€“toâ€“visible highly selective thermal emitters based on an intrinsic semiconductor. Science Advances, 2016, 2, e1600499.	10.3	61
33	Silicon carbide-based photonic crystal nanocavities for ultra-broadband operation from infrared to visible wavelengths. Applied Physics Letters, 2011, 99, 201102.	3.3	59
34	Characterization of line-defect-waveguide lasers in two-dimensional photonic-crystal slabs. Applied Physics Letters, 2004, 84, 5395-5397.	3.3	45
35	Role of interfaces in heterophotonic crystals for manipulation of photons. Physical Review B, 2005, 71, .	3.2	43
36	Improvement in the quality factors for photonic crystal nanocavities via visualization of the leaky components. Optics Express, 2016, 24, 9541.	3.4	42

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37	Investigation of point-defect cavity formed in two-dimensional photonic crystal slab with one-sided dielectric cladding. Applied Physics Letters, 2006, 88, 011112.	3.3	41
38	Ultrahigh-Q photonic crystal nanocavities fabricated by CMOS process technologies. Optics Express, 2017, 25, 18165.	3.4	41
39	Iterative optimization of photonic crystal nanocavity designs by using deep neural networks. Nanophotonics, 2019, 8, 2243-2256.	6.0	41
40	On-demand transfer of trapped photons on a chip. Science Advances, 2016, 2, e1501690.	10.3	39
41	Analysis of high-Q photonic crystal L3 nanocavities designed by visualization of the leaky components. Optics Express, 2017, 25, 367.	3.4	37
42	Investigation of a channel-add/drop-filtering device using acceptor-type point defects in a two-dimensional photonic-crystal slab. Applied Physics Letters, 2003, 83, 407-409.	3.3	36
43	Ultra-compact 32-channel drop filter with 100 GHz spacing. Optics Express, 2014, 22, 4692.	3.4	35
44	Suppression of multiple photon absorption in a SiC photonic crystal nanocavity operating at 155 Î¼m. Optics Express, 2012, 20, 14789.	3.4	34
45	Investigation of short wavelength intersubband transitions in InGaAs/AlAs quantum wells on GaAs substrate. Journal of Applied Physics, 1997, 82, 3385-3391.	2.5	32
46	Spectrally selective thermal radiation based on intersubband transitions and photonic crystals. Optics Express, 2009, 17, 19190.	3.4	30
47	Light-emission properties of quantum dots embedded in a photonic double-heterostructure nanocavity. Applied Physics Letters, 2007, 90, 231101.	3.3	29
48	High-Efficiency Thermophotovoltaic System That Employs an Emitter Based on a Silicon Rod-Type Photonic Crystal. ACS Photonics, 2020, 7, 80-87.	6.6	29
49	Raman shift and strain effect in high-Q photonic crystal silicon nanocavity. Optics Express, 2015, 23, 3951.	3.4	27
50	Near-field thermophotovoltaic energy conversion using an intermediate transparent substrate. Optics Express, 2018, 26, A192.	3.4	27
51	High-<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>Q</mml:mi></mml:math>resonant modes in a photonic crystal heterostructure nanocavity and applicability to a Raman silicon laser. Physical Review B, 2013, 88, .	3.2	26
52	Photonic Crystal Devices in Silicon Photonics. Proceedings of the IEEE, 2018, 106, 2183-2195.	21.3	26
53	Integrated Near-Field Thermophotovoltaic Device Overcoming Blackbody Limit. ACS Photonics, 2021, 8, 2466-2472.	6.6	26
54	Design of single-mode narrow-bandwidth thermal emitters for enhanced infrared light sources. Journal of the Optical Society of America B: Optical Physics, 2013, 30, 165.	2.1	25

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55	On-chip integration and high-speed switching of multi-wavelength narrowband thermal emitters. Applied Physics Letters, 2016, 108, .	3.3	24
56	Resonant-Wavelength Control of Nanocavities by Nanometer-Scaled Adjustment of Two-Dimensional Photonic Crystal Slab Structures. IEEE Photonics Technology Letters, 2008, 20, 532-534.	2.5	23
57	Filter-free nondispersive infrared sensing using narrow-bandwidth mid-infrared thermal emitters. Applied Physics Express, 2014, 7, 012103.	2.4	23
58	Electrical Modulation of Narrowband GaN/AlGaN Quantum-Well Photonic Crystal Thermal Emitters in Mid-Wavelength Infrared. ACS Photonics, 2019, 6, 1565-1571.	6.6	21
59	High-Q-factor nanobeam photonic crystal cavities in bulk silicon carbide. Applied Physics Letters, 2018, 113, .	3.3	20
60	Strongly asymmetric wavelength dependence of optical gain in nanocavity-based Raman silicon lasers. Optica, 2018, 5, 1256.	9.3	20
61	Line-defectâ€“waveguide laser integrated with a point defect in a two-dimensional photonic crystal slab. Applied Physics Letters, 2005, 86, 171106.	3.3	19
62	Green GaInN photonic-crystal light-emitting diodes with small surface recombination effect. Applied Physics Letters, 2011, 98, .	3.3	19
63	Lasing Dynamics of Optically-Pumped Ultralow-Threshold Raman Silicon Nanocavity Lasers. Physical Review Applied, 2018, 10, .	3.8	19
64	Pump and probe measurement of intersubband relaxation time in short-wavelength intersubband transition. Applied Physics Letters, 1999, 74, 1418-1420.	3.3	18
65	Electrically controlled on-demand photon transfer between high-Q photonic crystal nanocavities on a silicon chip. Nature Photonics, 2022, 16, 113-118.	31.4	16
66	Sub-100-nW-threshold Raman silicon laser designed by a machine-learning method that optimizes the product of the cavity Q-factors. Optics Express, 2021, 29, 17053.	3.4	14
67	Structural Optimization of Photonic Crystals for Enhancing Optical Absorption of Thin Film Silicon Solar Cell Structures. IEEE Photonics Journal, 2014, 6, 1-10.	2.0	12
68	Adiabatic transfer scheme of light between strongly coupled photonic crystal nanocavities. Physical Review B, 2013, 87, .	3.2	11
69	Detrimental Fluctuation of Frequency Spacing Between the Two High-Quality Resonant Modes in a Raman Silicon Nanocavity Laser. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-12.	2.9	11
70	Statistical evaluation of Q factors of fabricated photonic crystal nanocavities designed by using a deep neural network. Applied Physics Express, 2020, 13, 012002.	2.4	11
71	Fabrication and characterization of an L3 nanocavity designed by an iterative machine-learning method. APL Photonics, 2021, 6, .	5.7	11
72	Detection of negatively ionized air by using a Raman silicon nanocavity laser. Optics Express, 2021, 29, 16228.	3.4	11

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73	Analysis of Q-factors of structural imperfections in triangular cross-section nanobeam photonic crystal cavities. Journal of the Optical Society of America B: Optical Physics, 2015, 32, 1792.	2.1	10
74	Demonstration of a mid-wavelength infrared narrowband thermal emitter based on GaN/AlGaN quantum wells and a photonic crystal. Applied Physics Letters, 2017, 110, .	3.3	10
75	Near-field thermophotovotaic devices with surrounding non-contact reflectors for efficient photon recycling. Optics Express, 2021, 29, 11133.	3.4	10
76	Spectral control of near-field thermal radiation via photonic band engineering of two-dimensional photonic crystal slabs. Optics Express, 2018, 26, 32074.	3.4	10
77	Ultra-short pulse propagation in 3D GaAs photonic crystals. Optical and Quantum Electronics, 2002, 34, 37-43.	3.3	9
78	Wavelength-selective thermal emitters using Si-rods on MgO. Applied Physics Letters, 2018, 112, .	3.3	9
79	1.2-Âµm-band ultrahigh-Q photonic crystal nanocavities and their potential for Raman silicon lasers. Optics Express, 2021, 29, 24396.	3.4	8
80	Multiple-channel wavelength conversions in a photonic crystal cavity. Optics Express, 2015, 23, 4523.	3.4	7
81	Tuning holes in photonic-crystal nanocavities (reply). Nature, 2004, 429, 1-2.	27.8	6
82	A Polarization Diversity Two-Dimensional Photonic-Crystal Device. IEEE Journal of Selected Topics in Quantum Electronics, 2010, 16, 70-76.	2.9	5
83	Determination of Nonlinear Optical Efficiencies of Ultrahigh-Q Photonic Crystal Nanocavities with Structural Imperfections. ACS Photonics, 2021, 8, 2839-2845.	6.6	5
84	RECENT ADVANCES IN TWO-DIMENSIONAL PHOTONIC CRYSTALS SLAB STRUCTURE: DEFECT ENGINEERING AND HETEROSTRUCTURE. Nano, 2007, 02, 1-13.	1.0	4
85	Dynamic wavelength conversion of an optical pulse traveling in a 2D photonic crystal waveguide. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	3
86	Femtosecond pump and probe measurement of all-optical modulation based on intersubband transition in n-doped quantum wells. Physica E: Low-Dimensional Systems and Nanostructures, 2000, 7, 704-708.	2.7	2
87	Channel-Add Operation of a Device Using Defects in a Two-Dimensional Photonic Crystal Slab. Materials Research Society Symposia Proceedings, 2002, 722, 231.	0.1	1
88	Dynamic Q factor control of photonic crystal nanocavities. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	1
89	A sub-microwatt threshold Raman silicon laser using a high-Q nanocavity. , 2015, , .		1
90	GaN/AlGaN photonic crystal narrowband thermal emitters on a semi-transparent low-refractive-index substrate. AIP Advances, 2018, 8, 015221.	1.3	1

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91	Controlling spontaneous emission phenomena in defect-free 2D photonic crystals with quantum dots. , 2006, , .		0
92	Light Emission from Quantum Dots embedded in a Photonic Double-Heterostructure Nanocavity. , 2007, , .		0
93	Ultra-high-Q Photonic Nanocavities. Conference Proceedings - Lasers and Electro-Optics Society Annual Meeting-LEOS, 2007, , .	0.0	0
94	Spectral reflectance measurement of two-dimensional photonic nanocavities with embedded quantum dots. , 2008, , .		0
95	Time-resolved observation of stopping optical pulses by dynamic Q control of a photonic-crystal nanocavity. , 2009, , .		0
96	Observation of strong coupling between distant photonic nanocavities through a waveguide. , 2010, , .		0
97	Photonic crystal nanocavities and broad-area cavities. , 2011, , .		0
98	Thermal emission control by simultaneous manipulation of electronic and photonic states. , 2011, , .		0
99	Efficient scheme for on-demand light transfer between distant nanocavities. , 2013, , .		0
100	Single-mode, narrowband thermal emitters based on quantum wells and photonic crystals. , 2013, , .		0
101	Dynamic control of narrowband thermal emission. , 2014, , .		0
102	Analysis of emissivity and absorptivity of two overlapping guided modes in two-dimensional periodic structures. Physical Review A, 2014, 89, .	2.5	0
103	Efficient conversion of second harmonic generation in high-Q SiC photonic crystal nanocavities. , 2016, , .		0
104	Improvement of out-coupling of the oblique waveguide in three-dimensional photonic crystals by introducing a symmetric end structure. , 2016, , .		0
105	Two-wavelength switchable narrowband thermal emitters. , 2016, , .		0
106	Narrowband thermal emitters based on photonic crystals. , 2017, , .		0
107	Electrical Control of Middle-Wavelength Infrared Thermal Emission using GaN/AlGaN Photonic Crystals. , 2018, , .		0
108	Dynamic control of photonic crystal nanocavities for photon manipulation. IEICE Proceeding Series, 2014, 1, 356-359.	0.0	0

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109	One-chip Integrated Near-field Thermophotovoltaic Devices Using Intermediate Transparent Substrates. , 2019, , .		0
110	Raman Scattering Emission from a Silicon Photonic Nanocavity Excited by a Superluminescent Diode. , 2020, , .		0