Toshiharu Makino

List of Publications by Year
in descending order

138 papers	3,220 citations	126907 33 h-index	182427 51 g-index
139 all docs	139 docs citations	139 times ranked	2119 citing authors

#	Article	IF	Citations
1	Electrically driven single-photon source at room temperature in diamond. Nature Photonics, 2012, 6, 299-303.	31.4	291
2	Inversion channel diamond metal-oxide-semiconductor field-effect transistor with normally off characteristics. Scientific Reports, 2016, 6, 31585.	3.3	150
3	n-type diamond growth by phosphorus doping on (0â€‰0â€‰1)-oriented surface. Journal Physics D: Applied Physics, 2007, 40, 6189-6200.	2.8	90
4	Misorientation-angle dependence of boron incorporation into (001)-oriented chemical-vapor-deposited (CVD) diamond. Journal of Crystal Growth, 2011, 317, 60-63.	1.5	90
5	Perfect selective alignment of nitrogen-vacancy centers in diamond. Applied Physics Express, 2014, 7, 055201.	2.4	84
6	Direct Nanoscale Sensing of the Internal Electric Field in Operating Semiconductor Devices Using Single Electron Spins. ACS Nano, 2017, 11, 1238-1245.	14.6	82
7	Diamond Schottky-pn diode with high forward current density and fast switching operation. Applied Physics Letters, 2009, 94, .	3.3	77
8	Pure negatively charged state of the NV center in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>n</mml:mi></mml:math>-type diamond. Physical Review B, 2016, 93, .	3.2	77
9	600 V Diamond Junction Field-Effect Transistors Operated at 200$^{circ}{m C}$. IEEE Electron Device Letters, 2014, 35, 241-243.	3.9	74
10	High performance of diamond p+-i-n+ junction diode fabricated using heavily doped p+ and n+ layers. Applied Physics Letters, 2009, 94, .	3.3	73
11	Enhancement in emission efficiency of diamond deep-ultraviolet light emitting diode. Applied Physics Letters, 2011, 99, .	3.3	73
12	Diamond Junction Field-Effect Transistors with Selectively Grown n^{+}-Side Gates. Applied Physics Express, 2012, 5, 091301.	2.4	61
13	Selective Growth of Buried n+Diamond on (001) Phosphorus-Doped n-Type Diamond Film. Applied Physics Express, 2009, 2, 055502.	2.4	55
14	Negative electron affinity of diamond and its application to high voltage vacuum power switches. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 1961-1975.	1.8	53
15	High-Efficiency Excitonic Emission with Deep-Ultraviolet Light from (001)-Oriented Diamondp-i-nJunction. Japanese Journal of Applied Physics, 2006, 45, L1042-L1044.	1.5	52
16	Electrical characterization of diamond Pi<scp>N</scp> diodes for high voltage applications. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 2035-2039.	1.8	52
17	Diamond bipolar junction transistor device with phosphorus-doped diamond base layer. Diamond and Related Materials, 2012, 27-28, 19-22.	3.9	51
18	High-Temperature Operation of Diamond Junction Field-Effect Transistors With Lateral p-n Junctions. IEEE Electron Device Letters, 2013, 34, 1175-1177.	3.9	51

#	Article	IF	Citations
19	N-type control of single-crystal diamond films by ultra-lightly phosphorus doping. Applied Physics Letters, 2016, 109, .	3.3	49
20	Structures and optical properties of silicon nanocrystallites prepared by pulsed-laser ablation in inert background gas. Applied Physics Letters, 2000, 76, 1389-1391.	3.3	46
21	Formation of nanoscale fine-structured silicon by pulsed laser ablation in hydrogen background gas. Physical Review B, 2007, 76, .	3.2	43
22	Generation and transportation mechanisms for two-dimensional hole gases in GaN/AlGaN/GaN double heterostructures. Journal of Applied Physics, 2014, 115, .	2.5	42
23	Deterministic Electrical Charge-State Initialization of Single Nitrogen-Vacancy Center in Diamond. Physical Review X, 2014, 4, .	8.9	41
24	Anisotropic diamond etching through thermochemical reaction between Ni and diamond in high-temperature water vapour. Scientific Reports, 2018, 8, 6687.	3.3	41
25	Stoichiometric indium oxide thin films prepared by pulsed laser deposition in pure inert background gas. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2000, 18, 83-86.	2.1	40
26	Annealing effects on structures and optical properties of silicon nanostructured films prepared by pulsed-laser ablation in inert background gas. Journal of Applied Physics, 2001, 90, 5075-5080.	2.5	39
27	Atomistic mechanism of perfect alignment of nitrogen-vacancy centers in diamond. Applied Physics Letters, 2014, 105, .	3.3	39
28	Fabrication of bipolar junction transistor on (001)-oriented diamond by utilizing phosphorus-doped n-type diamond base. Diamond and Related Materials, 2013, 34, 41-44.	3.9	38
29	Formation of Graphene-on-Diamond Structure by Graphitization of Atomically Flat Diamond (111) Surface. Japanese Journal of Applied Physics, 2013, 52, 110121.	1.5	37
30	Diamond Schottky-pn diode using lightly nitrogen-doped layer. Diamond and Related Materials, 2017, 75, 152-154.	3.9	37
31	Normally-Off Diamond Junction Field-Effect Transistors With Submicrometer Channel. IEEE Electron Device Letters, 2016, 37, 209-211.	3.9	36
32	Monodispersed, nonagglomerated silicon nanocrystallites. Applied Physics Letters, 2001, 78, 2043-2045.	3.3	35
33	Diamond Schottkyâ€pn diode without tradeâ€off relationship between onâ€resistance and blocking voltage. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 2105-2109.	1.8	34
34	Electrical excitation of silicon-vacancy centers in single crystal diamond. Applied Physics Letters, 2015, 106, .	3.3	33
35	Electrical properties of lateral pâ€“n junction diodes fabricated by selective growth of n⁺ diamond. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 1761-1764.	1.8	32
36	Electronic properties of diamond Schottky barrier diodes fabricated on silicon-based heteroepitaxially grown diamond substrates. Applied Physics Express, 2015, 8, 104103.	2.4	30

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37	Electrical and lightâ€emitting properties of homoepitaxial diamond pâ€“iâ€“n junction. Physica Status Solidi (A) Applications and Materials Science, 2008, 205, 2200-2206.	1.8	29
38	Diamond electronic devices fabricated using heavily doped hopping p⁺and n⁺layers. Japanese Journal of Applied Physics, 2014, 53, 05FA12.	1.5	29
39	High-Temperature Bipolar-Mode Operation of Normally-Off Diamond JFET. IEEE Journal of the Electron Devices Society, 2017, 5, 95-99.	2.1	27
40	Single crystal diamond membranes for nanoelectronics. Nanoscale, 2018, 10, 4028-4035.	5.6	27
41	Engineering of Fermi level by <i>nin</i> diamond junction for control of charge states of NV centers. Applied Physics Letters, 2018, 112, .	3.3	26
42	Electron Emission from a Diamond (111) pâ€“iâ€“n+Junction Diode with Negative Electron Affinity during Room Temperature Operation. Applied Physics Express, 2010, 3, 041301.	2.4	24
43	Homoepitaxial diamond pâ€“n+ junction with low specific on-resistance and ideal built-in potential. Diamond and Related Materials, 2008, 17, 782-785.	3.9	23
44	Formation of atomically flat hydroxyl-terminated diamond (1â€¯1â€¯1) surfaces via water vapor annealing. Applied Surface Science, 2018, 458, 222-225.	6.1	23
45	Strong Excitonic Emission from (001)-Oriented DiamondP-NJunction. Japanese Journal of Applied Physics, 2005, 44, L1190-L1192.	1.5	22
46	Mechanism of anisotropic etching on diamond (111) surfaces by a hydrogen plasma treatment. Applied Surface Science, 2017, 422, 452-455.	6.1	22
47	High-Voltage Vacuum Switch with a Diamond pâ€“iâ€“n Diode Using Negative Electron Affinity. Japanese Journal of Applied Physics, 2012, 51, 090113.	1.5	22
48	Electrical and optical characterization of boron-doped (111) homoepitaxial diamond films. Diamond and Related Materials, 2005, 14, 1964-1968.	3.9	21
49	Diamond Schottky pâ€“n diode with high forward current density. Physica Status Solidi (A) Applications and Materials Science, 2009, 206, 2086-2090.	1.8	20
50	Energy distribution of Al2O3/diamond interface states characterized by high temperature capacitance-voltage method. Carbon, 2020, 168, 659-664.	10.3	20
51	Surface conductive layers on oxidized (111) diamonds. Applied Physics Letters, 2005, 87, 262107.	3.3	19
52	Electron emission from diamond <i>p</i>â€“<i>i</i>â€“<i>n</i> junction diode with heavily Pâ€doped <i>n</i>⁺ top layer. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 2073-2078.	1.8	19
53	Formation of Step-Free Surfaces on Diamond (111) Mesas by Homoepitaxial Lateral Growth. Japanese Journal of Applied Physics, 2012, 51, 090107.	1.5	19
54	Carrier transport in homoepitaxial diamond films with heavy phosphorus doping. Japanese Journal of Applied Physics, 2014, 53, 05FP05.	1.5	19

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55	Inversion channel mobility and interface state density of diamond MOSFET using N-type body with various phosphorus concentrations. Applied Physics Letters, 2019, 114, .	3.3	19
56	Formation of Step-Free Surfaces on Diamond (111) Mesas by Homoepitaxial Lateral Growth. Japanese Journal of Applied Physics, 2012, 51, 090107.	1.5	19
57	Electrical and light-emitting properties of (001)-oriented homoepitaxial diamond pâ€"iâ€"n junction. Diamond and Related Materials, 2007, 16, 1025-1028.	3.9	18
58	Electrical and light-emitting properties from (111)-oriented homoepitaxial diamond pâ€"iâ€"n junctions. Diamond and Related Materials, 2009, 18, 764-767.	3.9	18
59	Charge state modulation of nitrogen vacancy centers in diamond by applying a forward voltage across a pâ€"iâ€"n junction. Diamond and Related Materials, 2016, 63, 192-196.	3.9	18
60	Structural and optical properties of surface-hydrogenated silicon nanocrystallites prepared by reactive pulsed laser ablation. Journal Physics D: Applied Physics, 2005, 38, 3507-3511.	2.8	17
61	High-Voltage Vacuum Switch with a Diamond pâ€"iâ€"n Diode Using Negative Electron Affinity. Japanese Journal of Applied Physics, 2012, 51, 090113.	1.5	17
62	Vector Electrometry in a Wide-Gap-Semiconductor Device Using a Spin-Ensemble Quantum Sensor. Physical Review Applied, 2020, 14, .	3.8	17
63	Oxidation processes of surface hydrogenated silicon nanocrystallites prepared by pulsed laser ablation and their effects on the photoluminescence wavelength. Journal of Applied Physics, 2008, 103, 024305.	2.5	16
64	Reduction of nâ€type diamond contact resistance by graphite electrode. Physica Status Solidi - Rapid Research Letters, 2014, 8, 137-140.	2.4	16
65	Electrical and optical characterizations of (001)-oriented homoepitaxial diamond pâ€"n junction. Diamond and Related Materials, 2006, 15, 513-516.	3.9	15
66	Free exciton luminescence from a diamond pâ€"iâ€"n diode grown on a substrate produced by heteroepitaxy. Physica Status Solidi (A) Applications and Materials Science, 2014, 211, 2251-2256.	1.8	14
67	Direct observation of inversion capacitance in p-type diamond MOS capacitors with an electron injection layer. Japanese Journal of Applied Physics, 2018, 57, 04FR01.	1.5	14
68	Nonlinear behavior of currentâ€dependent emission for diamond lightâ€emitting diodes. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 1754-1760.	1.8	13
69	Improvement of (001)-oriented diamond p-i-n diode by use of selective grown n+ layer. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 2099-2104.	1.8	12
70	Structural and optical properties of silicon nanoparticles prepared by pulsed laser ablation in hydrogen background gas. Applied Physics A: Materials Science and Processing, 2004, 79, 1391-1393.	2.3	11
71	Desorption time of phosphorus during MPCVD growth of n-type (001) diamond. Diamond and Related Materials, 2016, 64, 208-212.	3.9	11
72	Estimation of Inductively Coupled Plasma Etching Damage of Boronâ€Doped Diamond Using Xâ€Ray Photoelectron Spectroscopy. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700233.	1.8	11

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73	Temperature dependence of electrical characteristics for diamond Schottky-pn diode in forward bias. Diamond and Related Materials, 2018, 85, 49-52.	3.9	11
74	Characterization of Schottky Barrier Diodes on Heteroepitaxial Diamond on 3C-SiC/Si Substrates. IEEE Transactions on Electron Devices, 2020, 67, 212-216.	3.0	11
75	Insight into Al2O3/B-doped diamond interface states with high-temperature conductance method. Applied Physics Letters, 2020, 117, .	3.3	11
76	Fabrication of inversion p-channel MOSFET with a nitrogen-doped diamond body. Applied Physics Letters, 2021, 119, .	3.3	11
77	Pressure-induced structural phase transition of CdS microcrystals studied by raman scattering. Journal of Physics and Chemistry of Solids, 1995, 56, 491-494.	4.0	10
78	Structural phase transition of CdS microcrystals embedded in glassy matrix under high pressure. Journal of Physics Condensed Matter, 1998, 10, 10919-10930.	1.8	10
79	Isotope effects between hydrogen and deuterium microwave plasmas on chemical vapor deposition homoepitaxial diamond growth. Journal of Applied Physics, 2007, 101, 103501.	2.5	10
80	Electron emission from CVD diamond pâ€“iâ€“n junctions with negative electron affinity during room temperature operation. Diamond and Related Materials, 2011, 20, 917-921.	3.9	10
81	Analysis of selective growth of n-type diamond in lateral pâ€“n junction diodes by cross-sectional transmission electron microscopy. Japanese Journal of Applied Physics, 2014, 53, 05FP01.	1.5	10
82	Dynamic properties of diamond high voltage pâ€“iâ€“n diodes. Japanese Journal of Applied Physics, 2017, 56, 04CR14.	1.5	10
83	Charge-state control of ensemble of nitrogen vacancy centers by nâ€“iâ€“n diamond junctions. Applied Physics Express, 2018, 11, 033004.	2.4	10
84	Inversion channel MOSFET on heteroepitaxially grown free-standing diamond. Carbon, 2021, 175, 615-619.	10.3	9
85	Characterization of Field Emission from Nano-Scale Diamond Tip Arrays. Japanese Journal of Applied Physics, 2005, 44, L385-L387.	1.5	8
86	Electrical characterization of homoepitaxial diamond pâ€“n+ junction. Diamond and Related Materials, 2005, 14, 1995-1998.	3.9	8
87	Exciton-derived Electron Emission from (001) Diamond<i>p</i>â€“<i>n</i>Junction Diodes with Negative Electron Affinity. Applied Physics Express, 2008, 1, 015004.	2.4	8
88	Electroluminescence of monodispersed silicon nanocrystallites synthesized by pulsed laser ablation in inert background gas. Applied Surface Science, 2002, 197-198, 594-597.	6.1	7
89	Correlation between surface oxide and photoluminescence properties of Si nanoparticles prepared by pulsed laser ablation. Applied Physics A: Materials Science and Processing, 2004, 79, 1545-1547.	2.3	7
90	Recombination process of CdS quantum dot covered by novel polymer chains. Physica E: Low-Dimensional Systems and Nanostructures, 2004, 21, 1102-1105.	2.7	7

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91	Polarizationâ€controlled dressedâ€photonâ€“phonon etching of patterned diamond structures. Physica Status Solidi (A) Applications and Materials Science, 2014, 211, 2339-2342.	1.8	7
92	Fabrication of diamond lateral pâ€“n junction diodes on (111) substrates. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2548-2552.	1.8	7
93	Microstructures of dome-shaped hillocks formed on B doped CVD homoepitaxial diamond films. Diamond and Related Materials, 2019, 97, 107422.	3.9	7
94	Reaction between nitrogen gas and silicon species during pulsed laser ablation. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2003, 21, 1680-1682.	2.1	6
95	Electron emission by current injection from nâ€type diamond film surface with negative electron affinity. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 2093-2098.	1.8	6
96	Device Design of Diamond Schottky-pn Diode for Low-Loss Power Electronics. Japanese Journal of Applied Physics, 2012, 51, 090116.	1.5	6
97	Maskless Selective Growth Method for pâ€“n Junction Applications on (001)-Oriented Diamond. Japanese Journal of Applied Physics, 2012, 51, 090118.	1.5	6
98	Charge transport properties of intrinsic layer in diamond vertical pin diode. Applied Physics Letters, 2017, 110, .	3.3	6
99	Observation of Interface Defects in Diamond Lateral p-n-Junction Diodes and Their Effect on Reverse Leakage Current. IEEE Transactions on Electron Devices, 2017, 64, 3298-3302.	3.0	6
100	Pressure Effects on CdS Microcrystals Embedded in Germanate Glasses. Japanese Journal of Applied Physics, 1993, 32, 297.	1.5	6
101	Diamond Schottky barrier diodes with low specific on-resistance. Semiconductor Science and Technology, 2005, 20, 1203-1206.	2.0	5
102	Carrier transport of diamond p⁺â€iâ€n⁺ junction diode fabricated using lowâ€resistance hopping p⁺ and n⁺ layers. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 937-942.	1.8	5
103	Conductive-probe atomic force microscopy and Kelvin-probe force microscopy characterization of OH-terminated diamond (111) surfaces with step-terrace structures. Japanese Journal of Applied Physics, 2019, 58, SIIB08.	1.5	5
104	Carrier transport mechanism of diamond p⁺â€“n junction at low temperature using Schottkyâ€“pn junction structure. Japanese Journal of Applied Physics, 2021, 60, 030905.	1.5	5
105	Device Design of Diamond Schottky-pn Diode for Low-Loss Power Electronics. Japanese Journal of Applied Physics, 2012, 51, 090116.	1.5	5
106	Maskless Selective Growth Method for pâ€“n Junction Applications on (001)-Oriented Diamond. Japanese Journal of Applied Physics, 2012, 51, 090118.	1.5	5
107	Growth and characterization of boron-doped CVD homoepitaxial diamond films. Journal of Crystal Growth, 2007, 299, 235-242.	1.5	4
108	Unique temperature dependence of deep ultraviolet emission intensity for diamond light emitting diodes. Japanese Journal of Applied Physics, 2014, 53, 05FP02.	1.5	4

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109	Reverseâ€recovery of diamond pâ€iâ€n diodes. IET Power Electronics, 2018, 11, 695-699.	2.1	4
110	Temperature dependence of diamond MOSFET transport properties. Japanese Journal of Applied Physics, 2020, 59, SGGD19.	1.5	4
111	<title>Semiconductor nanocrystallite formation using inert gas ambient pulsed laser ablation and its application to light-emitting devices</title>. , 1999, 3618, 465.		3
112	Study of ion-implanted nitrogen related defects in diamond Schottky barrier diode by transient photocapacitance and photoluminescence spectroscopy. Japanese Journal of Applied Physics, 2021, 60, SBBD07.	1.5	3
113	Effects of annealing on luminescence properties of Si nanocrystallites prepared by pulsed laser ablation in inert gas. Materials Science and Engineering C, 2001, 15, 129-131.	7.3	2
114	<title>Synthesis of quantum nanostructures composed of monodispersed silicon nanoparticles and indium oxide thin films using pulsed laser ablation</title>. , 2002, 4636, 97.		2
115	n-Type Diamond Growth by Phosphorus Doping. Materials Research Society Symposia Proceedings, 2007, 1039, 1.	0.1	2
116	Optoelectronic Devices Using Homoepitaxial Diamond p-n and p-i-n Junctions. , 2009, , 379-398.		2
117	Diamond electronics. , 2016, , .		2
118	Study of defects in diamond Schottky barrier diode by photocurrent spectroscopy. Japanese Journal of Applied Physics, 2020, 59, SGGK14.	1.5	2
119	Distinguishing dislocation densities in intrinsic layers of pin diamond diodes using two photon-excited photoluminescence imaging. Diamond and Related Materials, 2021, 117, 108463.	3.9	2
120	<title>Crystallinities and light-emitting properties of nanostructured SiGe alloy prepared by pulsed laser ablation in inert background gases</title>. , 1999, 3618, 512.		1
121	Silicon Nanocrystallite Light Emitting Devices Fabricated by Full Pulsed-Laser-Ablation Process. Materials Research Society Symposia Proceedings, 2000, 638, 1.	0.1	1
122	Background gas effects on structural properties in thin films deposited by pulsed laser deposition. , 2002, , .		1
123	Potential profile evaluation of a diamond lateral pâ€“n junction diode using Kelvin probe force microscopy. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2589-2594.	1.8	1
124	Determination of Current Leakage Sites in Diamond pâ€“n Junction. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900243.	1.8	1
125	Charge state control by band engineering. Semiconductors and Semimetals, 2020, 103, 137-159.	0.7	1
126	Selectively buried growth of heavily B doped diamond layers with step-free surfaces in N doped diamond (111) by homoepitaxial lateral growth. Applied Surface Science, 2022, , 153340.	6.1	1

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127	Scanning diamond NV center magnetometer probe fabricated by laser cutting and focused ion beam milling. Journal of Applied Physics, 2021, 130, .	2.5	1
128	Mechanisms of Visible Photoluminescence from Size-Controlled Silicon Nanoparticles. Materials Research Society Symposia Proceedings, 2002, 737, 325.	0.1	0
129	Correlation between electronic structure and chemical bond on the surface of hydrogenated silicon nanocrystallites. AIP Conference Proceedings, 2005, , .	0.4	0
130	Preparation of surface controlled silicon nanocrystallites by pulsed laser ablation. AIP Conference Proceedings, 2005, , .	0.4	0
131	Electron Emission from Diamond (111) p+-i-n+ Junction Diode. Materials Research Society Symposia Proceedings, 2009, 1203, 1.	0.1	0
132	Single photon, spin, and charge in diamond semiconductor at room temperature. , 2013, , .		0
133	Electron emission from nitrogen-containing diamond with narrow-gap coplanar electrodes. Japanese Journal of Applied Physics, 2014, 53, 05FP08.	1.5	0
134	Investigation of electron emission site of pâ€“iâ€“n diode-type emitters with negative electron affinity. Japanese Journal of Applied Physics, 2014, 53, 05FP07.	1.5	0
135	Laser Processing for Fabrication of Silicon Nanoparticles and Quantum Dot Functional Structures. The Review of Laser Engineering, 2003, 31, 548-551.	0.0	0
136	Optical Properties and Structural Changes in Semiconductor Fine Particles. Springer Series in Cluster Physics, 1999, , 19-30.	0.3	0
137	Defect luminescence in Diamond and GaN: towards single photon emitting devices. , 2016, , .		0
138	Optically detected magnetic resonance of nitrogen-vacancy centers in vertical diamond Schottky diodes. Japanese Journal of Applied Physics, 2022, 61, SC1061.	1.5	0