Debbie G Senesky

List of Publications by Year
in descending order

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108 papers	2,278 citations	257101 24 h-index	243296 44 g-index
117 all docs	117 docs citations	117 times ranked	2399 citing authors

#	Article	IF	Citations
1	Harsh Environment Silicon Carbide Sensors for Health and Performance Monitoring of Aerospace Systems: A Review. IEEE Sensors Journal, 2009, 9, 1472-1478.	2.4	181
2	AlN/3Câ€“SiC Composite Plate Enabling Highâ€Frequency and Highâ€Q Micromechanical Resonators. Advanced Materials, 2012, 24, 2722-2727.	11.1	143
3	High-Q aluminum nitride Lamb wave resonators with biconvex edges. Applied Physics Letters, 2011, 99, .	1.5	136
4	Advances in silicon carbide science and technology at the micro- and nanoscales. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2013, 31, .	0.9	127
5	Solar-Blind Photodetectors for Harsh Electronics. Scientific Reports, 2013, 3, 2628.	1.6	113
6	Temperature sensor based on 4H-silicon carbide pn diode operational from 20â€‰Â°C to 600â€‰Â°C. Applied Physics Letters, 2014, 104, .	1.5	82
7	4Hâ€“SiC Metalâ€“Semiconductorâ€“Metal Ultraviolet Photodetectors in Operation of 450 $^{circ}hbox{C}$. IEEE Electron Device Letters, 2012, 33, 1586-1588.	2.2	76
8	AlN thin films grown on epitaxial 3Câ€“SiC (100) for piezoelectric resonant devices. Applied Physics Letters, 2010, 97, 141907.	1.5	73
9	Suppression of Persistent Photoconductivity in AlGaN/GaN Ultraviolet Photodetectors Using <italic>In Situ</italic> Heating. IEEE Electron Device Letters, 2017, 38, 56-59.	2.2	68
10	High Responsivity, Low Dark Current Ultraviolet Photodetectors Based on Two-Dimensional Electron Gas Interdigitated Transducers. ACS Photonics, 2018, 5, 4277-4282.	3.2	65
11	Surface acoustic wave devices on AlN/3Câ€“SiC/Si multilayer structures. Journal of Micromechanics and Microengineering, 2013, 23, 025019.	1.5	61
12	Highly sensitive 4H-SiC pressure sensor at cryogenic and elevatedÂtemperatures. Materials and Design, 2018, 156, 441-445.	3.3	60
13	Highly sensitive pressure sensors employing 3C-SiC nanowires fabricated on a free standing structure. Materials and Design, 2018, 156, 16-21.	3.3	49
14	Nanoarchitectonics for Wide Bandgap Semiconductor Nanowires: Toward the Next Generation of Nanoelectromechanical Systems for Environmental Monitoring. Advanced Science, 2020, 7, 2001294.	5.6	48
15	Profile Evolution of High Aspect Ratio Silicon Carbide Trenches by Inductive Coupled Plasma Etching. Journal of Microelectromechanical Systems, 2017, 26, 135-142.	1.7	47
16	Continuous V-Grooved AlGaN/GaN Surfaces for High-Temperature Ultraviolet Photodetectors. IEEE Sensors Journal, 2016, 16, 3633-3639.	2.4	44
17	Anchor loss reduction in ALN Lamb wave resonators using phononic crystal strip tethers. , 2014, , .		39
18	Monolithic mtesla-level magnetic induction by self-rolled-up membrane technology. Science Advances, 2020, 6, eaay4508.	4.7	35

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19	Low-Temperature, Ion Beam-Assisted SiC Thin Films With Antireflective ZnO Nanorod Arrays for High-Temperature Photodetection. IEEE Electron Device Letters, 2011, 32, 1564-1566.	2.2	31
20	ZnO nanorod arrays and direct wire bonding on GaN surfaces for rapid fabrication of antireflective, high-temperature ultraviolet sensors. Applied Surface Science, 2016, 387, 280-284.	3.1	31
21	InAlN/GaN high electron mobility micro-pressure sensors for high-temperature environments. Sensors and Actuators A: Physical, 2017, 263, 216-223.	2.0	31
22	Rapid fabrication and packaging of AlGaN/GaN high-temperature ultraviolet photodetectors using direct wire bonding. Journal Physics D: Applied Physics, 2016, 49, 285109.	1.3	30
23	4H-SiC N-Channel JFET for Operation in High-Temperature Environments. IEEE Journal of the Electron Devices Society, 2014, 2, 164-167.	1.2	26
24	Strain- and temperature-induced effects in AlGaN/GaN high electron mobility transistors. Semiconductor Science and Technology, 2016, 31, 035024.	1.0	26
25	Highly antireflective AlGaN/GaN ultraviolet photodetectors using ZnO nanorod arrays on inverted pyramidal surfaces. Applied Surface Science, 2017, 409, 91-96.	3.1	26
26	Effect of Geometry on Sensitivity and Offset of AlGaN/GaN and InAlN/GaN Hall-Effect Sensors. IEEE Sensors Journal, 2019, 19, 3640-3646.	2.4	24
27	Sensitivity of 2DEG-based Hall-effect sensors at high temperatures. Review of Scientific Instruments, 2020, 91, 025003.	0.6	23
28	DC characteristics of ALD-grown Al₂O₃/AlGaN/GaN MIS-HEMTs and HEMTs at 600 Â°C in air. Semiconductor Science and Technology, 2016, 31, 115017.	1.0	22
29	Stable Operation of AlGaN/GaN HEMTs for 25 h at 400Â°C in air. IEEE Journal of the Electron Devices Society, 2019, 7, 931-935.	1.2	22
30	Wide Bandgap Semiconductors for Sensing Within Extreme Harsh Environments. ECS Transactions, 2013, 50, 233-238.	0.3	21
31	Extreme Temperature Modeling of AlGaN/GaN HEMTs. IEEE Transactions on Electron Devices, 2020, 67, 430-437.	1.6	21
32	Characterization of aluminum nitride lamb wave resonators operating at 600°C for harsh environment RF applications. , 2010, , .		20
33	Epitaxial Graphene Growth on 3Câ€“SiC(111)/AlN(0001)/Si(100). Electrochemical and Solid-State Letters, 2011, 14, K13.	2.2	20
34	Tuning Electrical and Thermal Transport in AlGaN/GaN Heterostructures via Buffer Layer Engineering. Advanced Functional Materials, 2018, 28, 1705823.	7.8	19
35	Low-resistance gateless high electron mobility transistors using three-dimensional inverted pyramidal AlGaN/GaN surfaces. Applied Physics Letters, 2016, 108, .	1.5	18
36	Self-powered monolithic accelerometer using a photonic gate. Nano Energy, 2020, 76, 104950.	8.2	18

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37	Operation of ohmic Ti/Al/Pt/Au multilayer contacts to GaN at 600â€‰Â°C in air. Applied Physics Letters, 2014, 105, 081905.	1.5	17
38	A microfabricated sun sensor using GaN-on-sapphire ultraviolet photodetector arrays. Review of Scientific Instruments, 2016, 87, 095003.	0.6	16
39	Monolithically Integrated Microheater for On-Chip Annealing of Oxide Defects. IEEE Electron Device Letters, 2017, 38, 831-834.	2.2	16
40	Micro-Tesla Offset in Thermally Stable AlGaN/GaN 2DEG Hall Plates Using Current Spinning. , 2019, 3, 1-4.		16
41	Effect of Frost Formation on Operation of GaN Ultraviolet Photodetectors at Low Temperatures. IEEE Sensors Journal, 2017, 17, 4752-4756.	2.4	15
42	Two-port filters and resonators on AlN/3C-SiC plates utilizing high-order Lamb wave modes. , 2013, , .		14
43	Micromachined aluminum nitride acoustic resonators with an epitaxial silicon carbide layer utilizing high-order Lamb wave modes. , 2012, , .		13
44	Wafer-level MOCVD growth of AlGaN/GaN-on-Si HEMT structures with ultra-high room temperature 2DEG mobility. AIP Advances, 2016, 6, .	0.6	13
45	Interdigitated Pt-GaN Schottky interfaces for high-temperature soot-particulate sensing. Applied Surface Science, 2016, 368, 104-109.	3.1	13
46	Significant Phonon Drag Enables High Power Factor in the AlGaN/GaN Two-Dimensional Electron Gas. Nano Letters, 2019, 19, 3770-3776.	4.5	13
47	Ultra-High-Q Gallium Nitride SAW Resonators for Applications With Extreme Temperature Swings. Journal of Microelectromechanical Systems, 2020, 29, 900-905.	1.7	13
48	Aluminum nitride as a masking material for the plasma etching of silicon carbide structures. , 2010, , .		12
49	Thickness engineering of atomic layer deposited Al2O3 films to suppress interfacial reaction and diffusion of Ni/Au gate metal in AlGaN/GaN HEMTs up to 600â€‰Â°C in air. Applied Physics Letters, 2017, 110, .	1.5	12
50	Multilayer etch masks for 3-dimensional fabrication of robust silicon carbide microstructures. , 2015, , .		9
51	Degradation of 2DEG transport properties in GaN-capped AlGaN/GaN heterostructures at 600â€‰Â°C in oxidizing and inert environments. Journal of Applied Physics, 2017, 122, .	1.1	9
52	Characterization of the piezoresistance in highly doped p-type 3C-SiC at cryogenic temperatures. RSC Advances, 2018, 8, 29976-29979.	1.7	9
53	500Â^circC SiC PWM Integrated Circuit. IEEE Transactions on Power Electronics, 2019, 34, 1997-2001.	5.4	9
54	Low Offset and Noise in High Biased GaN 2DEG Hall-Effect Plates Investigated With Infrared Microscopy. Journal of Microelectromechanical Systems, 2020, 29, 669-676.	1.7	9

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55	Quality factor enhancement in lamb wave resonators utilizing AlN plates with convex edges. , 2011, , .		8
56	A Single Input Multiple Output (SIMO) Variation-Tolerant Nanosensor. ACS Sensors, 2018, 3, 1782-1788.	4.0	8
57	Synthesis of narrowband AlN Lamb wave ladder-type filters based on overhang adjustment. , 2010, , .		7
58	Inductive Coupled Plasma Etching of High Aspect Ratio Silicon Carbide Microchannels for Localized Cooling. , 2015, , .		7
59	Lithography and Etchingâ€Free Microfabrication of Silicon Carbide on Insulator Using Direct UV Laser Ablation. Advanced Engineering Materials, 2020, 22, 1901173.	1.6	7
60	Extended Exposure of Gallium Nitride Heterostructure Devices to a Simulated Venus Environment. , 2021, , .		7
61	Cluster-based acoustic emission signal processing and loading rate effects study of nanoindentation on thin film stack structures. Mechanical Systems and Signal Processing, 2022, 165, 108301.	4.4	7
62	A Laterally Vibrating Lithium Niobate MEMS Resonator Array Operating at 500 Â°C in Air. Sensors, 2021, 21, 149.	2.1	7
63	Emerging GaN-based HEMTs for mechanical sensing within harsh environments. Proceedings of SPIE, 2014, , .	0.8	6
64	Growth of 3C-SiC Thin Film on AlN/Si(100) with Atomically Abrupt Interface via Tailored Precursor Feeding Procedure. Electrochemical and Solid-State Letters, 2010, 13, D53.	2.2	5
65	Thermally stable SiO<inf>2</inf>/AlN/SiO<inf>2</inf> Lamb wave resonators utilizing the lowest-order symmetric mode at high temperatures. , 2013, , .		5
66	Effects of radiation and temperature on gallium nitride (GaN) metal-semiconductor-metal ultraviolet photodetectors. , 2014, , .		5
67	Lithography-free microfabrication of AlGaN/GaN 2DEG strain sensors using laser ablation and direct wire bonding. Microelectronic Engineering, 2017, 173, 54-57.	1.1	5
68	Graphene-enhanced gallium nitride ultraviolet photodetectors under 2â€‰MeV proton irradiation. Applied Physics Letters, 2017, 111, .	1.5	5
69	Strain Effect in Highlyâ€Doped nâ€Type 3Câ€SiCâ€onâ€Glass Substrate for Mechanical Sensors and Mobility Enhancement. Physica Status Solidi (A) Applications and Materials Science, 2018, 215, 1800288.	0.8	5
70	High-Temperature Electronics Packaging for Simulated Venus Condition. Journal of Microelectronics and Electronic Packaging, 2020, 17, 59-66.	0.8	5
71	Dispersion characteristics of high-order lamb wave modes in an AlN/3C-SiC layered plate. , 2012, , .		4
72	Geothermal environmental exposure testing of encapsulant and device materials for harsh environment MEMS sensors. , 2012, , .		4

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73	Irradiation effects of graphene-enhanced gallium nitride (GaN) metal-semiconductor-metal (MSM) ultraviolet photodetectors. Proceedings of SPIE, 2015, , .	0.8	4
74	High-throughput pulsed laser manufacturing etch process for complex and released structures from bulk 4H-SiC. , 2017, , .		4
75	Modeling of radiation-induced defect recovery in 3C-SiC under high field bias conditions. Computational Materials Science, 2019, 161, 10-15.	1.4	4
76	Selective aqueous ammonia sensors using electrochemical stripping and capacitive detection. AIChE Journal, 2021, 67, e17465.	1.8	4
77	Electron beam irradiation of gallium nitride-on-silicon betavoltaics fabricated with a triple mesa etch. Journal of Applied Physics, 2021, 130, 174503.	1.1	4
78	Surface acoustic wave propagation properties in AlN/3C-SiC/Si composite structure. , 2010, , .		3
79	MEMS Sensors for Down-Hole Monitoring of Geothermal Energy Systems. , 2011, , .		3
80	Impact of gamma irradiation on GaN/sapphire surface acoustic wave resonators. , 2014, , .		3
81	Characterization of gallium nitride microsystems within radiation and high-temperature environments. Proceedings of SPIE, 2014, , .	0.8	3
82	Finite element thermal analysis of localized heating in AlGaN/GaN HEMT based sensors. , 2014, , .		3
83	In situ ultraviolet shock radiance measurements using GaN-on-sapphire photodetectors. Review of Scientific Instruments, 2017, 88, 115004.	0.6	3
84	Thermoelectrics: Tuning Electrical and Thermal Transport in AlGaN/GaN Heterostructures via Buffer Layer Engineering (Adv. Funct. Mater. 22/2018). Advanced Functional Materials, 2018, 28, 1870152.	7.8	3
85	Gallium Nitride Photodetector Measurements of UV Emission from a Gaseous CH4/O2 Hybrid Rocket Igniter Plume. , 2019, , .		3
86	MEMS Strain Sensors for Intelligent Structural Systems. Lecture Notes in Electrical Engineering, 2011, , 63-74.	0.3	3
87	High Temperature Degradation Modes Observed in Gallium Nitride-Based Hall-Effect Sensors. Journal of Electronic Packaging, Transactions of the ASME, 2022, , .	1.2	3
88	Effect of proton irradiation temperature on persistent photoconductivity in zinc oxide metal-semiconductor-metal ultraviolet photodetectors. Journal of Applied Physics, 2022, 131, 155701.	1.1	3
89	Electrodeposition of Permalloy in Deep Silicon Trenches Without Edge-Overgrowth Utilizing Dry Film Photoresist. , 2009, , .		2
90	Nanocrystalline SiC metal-semiconductor-metal photodetector with ZnO nanorod arrays for high-temperature applications. , 2011, , .		2

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91	Closed-form orthotropic constitutive model for aligned square array mesostructure. Additive Manufacturing, 2020, 36, 101463.	1.7	2
92	Extreme temperature 4H-SiC metal-semiconductor-metal ultraviolet photodetectors. , 2012, , .		1
93	Micromechanical Resonators: AlN/3C-SiC Composite Plate Enabling High-Frequency and High-Q Micromechanical Resonators (Adv. Mater. 20/2012). Advanced Materials, 2012, 24, 2721-2721.	11.1	1
94	Acoustic characteristics of the third-order quasi-symmetric Lamb wave mode in an AlN/3C-SiC plate. , 2013, , .		1
95	Irradiation Response of Graphene Enhanced Gallium Nitride Metal-Semiconductor-Metal Ultraviolet Photodetectors. Materials Research Society Symposia Proceedings, 2015, 1746, 13.	0.1	1
96	Process-induced anomalous current transport in graphene/InAlN/GaN heterostructured diodes. , 2019, , .		1
97	Hall-Effect Sensor Technique for No Induced Voltage in AC Magnetic Field Measurements Without Current Spinning. IEEE Sensors Journal, 2022, 22, 1245-1251.	2.4	1
98	Nanoindentation characterization of thin film stack structures by finite element analysis and experiments using acoustic emission testing. Materials Science in Semiconductor Processing, 2022, 147, 106737.	1.9	1
99	High-endurance solar-blind photodetectors using AlN on Si substrates for extreme harsh environment applications. , 2013, , .		0
100	4H-SiC PN diode for extreme environment temperature sensing applications. , 2014, , .		0
101	High temperature energy harvesters utilizing ALN/3C-SiC composite diaphragms. , 2014, , .		0
102	Characterization of irradiated and temperature-compensated gallium nitride surface acoustic wave resonators. , 2014, , .		0
103	4th International Symposium on Sensor Science (I3S2015): Conference Report. Sensors, 2015, 15, 24458-24465.	2.1	0
104	Gallium Nitride Microelectronics for High-Temperature Environments. , 2016, , 395-433.		0
105	Enhancement of thermoelectric characteristics in AlGaN/GaN films deposited on inverted pyramidal Si surfaces. Applied Physics Letters, 2017, 111, 021902.	1.5	0
106	Low-temperature and pressure response of InAlN/GaN ring-shaped high electron mobility transistors. , 2017, , .		0
107	Correction to â€œStable Operation of AlGaN/GaN HEMTs for 25 Hours at 400Â°C in Airâ€• IEEE Journal of the Electron Devices Society, 2020, 8, 716-716.	1.2	0
108	Deployment of InAlN/GaN Hall-effect Sensors for Bucket Transformer Monitoring and Forecasting. , 2020, , .		0