

Sarit Dhar

List of Publications by Year in descending order

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120
papers

3,311
citations

136885

32
h-index

168321

53
g-index

122
all docs

122
docs citations

122
times ranked

2408
citing authors

#	ARTICLE	IF	CITATIONS
1	Silicon carbide: A unique platform for metal-oxide-semiconductor physics. Applied Physics Reviews, 2015, 2, .	5.5	225
2	Modified Deal Grove model for the thermal oxidation of silicon carbide. Journal of Applied Physics, 2004, 95, 4953-4957.	1.1	213
3	Bonding at the SiC~SiO ₂ Interface and the Effects of Nitrogen and Hydrogen. Physical Review Letters, 2007, 98, 026101.	2.9	171
4	Density of interface states, electron traps, and hole traps as a function of the nitrogen density in SiO ₂ on SiC. Journal of Applied Physics, 2009, 105, .	1.1	158
5	Role of self-trapped holes in the photoconductive gain of α -gallium oxide Schottky diodes. Journal of Applied Physics, 2016, 119, .	1.1	141
6	Chemical Properties of Oxidized Silicon Carbide Surfaces upon Etching in Hydrofluoric Acid. Journal of the American Chemical Society, 2009, 131, 16808-16813.	6.6	124
7	Inversion layer carrier concentration and mobility in 4H-SiC metal-oxide-semiconductor field-effect transistors. Journal of Applied Physics, 2010, 108, .	1.1	102
8	Enhanced Inversion Mobility on 4H-SiC $(\overline{111})$ Using Phosphorus and Nitrogen Interface Passivation. IEEE Electron Device Letters, 2013, 34, 181-183.	2.2	97
9	Interface Passivation for Silicon Dioxide Layers on Silicon Carbide. MRS Bulletin, 2005, 30, 288-292.	1.7	75
10	High-Mobility Stable 4H-SiC MOSFETs Using a Thin PSG Interfacial Passivation Layer. IEEE Electron Device Letters, 2013, 34, 175-177.	2.2	74
11	Effect of nitric oxide annealing on the interface trap density near the conduction bandedge of 4H-SiC at the oxide/(112 ₁ ,0) 4H-SiC interface. Applied Physics Letters, 2004, 84, 1498-1500.	1.5	72
12	Interface trap passivation for SiO ₂ -(0001) C-terminated 4H-SiC. Journal of Applied Physics, 2005, 98, 014902.	1.1	69
13	Increase in oxide hole trap density associated with nitrogen incorporation at the SiO ₂ /SiC interface. Journal of Applied Physics, 2008, 103, .	1.1	69
14	Temperature Dependence and Postirradiation Annealing Response of the $1/f$ Noise of 4H-SiC MOSFETs. IEEE Transactions on Electron Devices, 2013, 60, 2361-2367.	1.6	69
15	Delivery of lethal dsRNAs in insect diets by branched amphiphilic peptide capsules. Journal of Controlled Release, 2018, 273, 139-146.	4.8	69
16	High mobility 4H-SiC (0001) transistors using alkali and alkaline earth interface layers. Applied Physics Letters, 2014, 105, .	1.5	67
17	Electron capture and emission properties of interface states in thermally oxidized and NO-annealed SiO ₂ /4H-SiC. Journal of Applied Physics, 2008, 103, .	1.1	56
18	Analysis of temperature dependent forward characteristics of Ni/($\overline{2}01$) Ga ₂ O ₃ Schottky diodes. Semiconductor Science and Technology, 2016, 31, 115002.	1.0	55

#	ARTICLE	IF	CITATIONS
19	Si/SiO ₂ and SiC/SiO ₂ Interfaces for MOSFETs – Challenges and Advances. Materials Science Forum, 2006, 527-529, 935-948.	0.3	54
20	Pressure dependence of SiO ₂ growth kinetics and electrical properties on SiC. Journal of Applied Physics, 2008, 103, 023522.	1.1	52
21	High Channel Mobility 4H-SiC MOSFETs by Antimony Counter-Doping. IEEE Electron Device Letters, 2014, 35, 894-896.	2.2	52
22	Development of 15 kV 4H-SiC IGBTs. Materials Science Forum, 0, 717-720, 1135-1138.	0.3	49
23	Graphitic features on SiC surface following oxidation and etching using surface enhanced Raman spectroscopy. Applied Physics Letters, 2004, 85, 3495-3497.	1.5	48
24	High-resolution elemental profiles of the silicon dioxide–4H-silicon carbide interface. Journal of Applied Physics, 2005, 97, 104920.	1.1	46
25	Ultrashallow defect states at SiO ₂ –4H–SiC interfaces. Applied Physics Letters, 2008, 92, 102112.	1.5	45
26	Interface trapping in (2̄01) ̂ ² -Ga ₂ O ₃ MOS capacitors with deposited dielectrics. Applied Physics Letters, 2018, 112, .	1.5	42
27	Critical Issues for MOS Based Power Devices in 4H-SiC. Materials Science Forum, 0, 615-617, 743-748.	0.3	41
28	Performance, Reliability, and Robustness of 4H-SiC Power DMOSFETs. Materials Science Forum, 0, 645-648, 969-974.	0.3	41
29	Thermal characterization of gallium oxide Schottky barrier diodes. Review of Scientific Instruments, 2018, 89, 114903.	0.6	41
30	High-mobility enhancement-mode 4H-SiC lateral field-effect transistors utilizing atomic layer deposited Al ₂ O ₃ gate dielectric. Applied Physics Letters, 2009, 95, .	1.5	39
31	Effects of Bias on the Irradiation and Annealing Responses of 4H-SiC MOS Devices. IEEE Transactions on Nuclear Science, 2011, 58, 2925-2929.	1.2	37
32	Static Performance of 20Å, 1200ÅV 4H-SiC Power MOSFETs at Temperatures of ̂ [~] 187Å°C to 300Å°C. Journal of Electronic Materials, 2012, 41, 910-914.	1.0	37
33	Origins of Low-Frequency Noise and Interface Traps in 4H-SiC MOSFETs. IEEE Electron Device Letters, 2013, 34, 117-119.	2.2	37
34	Total Dose Radiation Response of Nitrided and Non-nitrided SiO ₂ /4H-SiC MOS Capacitors. IEEE Transactions on Nuclear Science, 2006, 53, 3687-3692.	1.2	36
35	A Study on Pre-Oxidation Nitrogen Implantation for the Improvement of Channel Mobility in 4H-SiC MOSFETs. IEEE Transactions on Electron Devices, 2010, 57, 1195-1200.	1.6	36
36	Nitridation anisotropy in SiO ₂ –4H–SiC. Journal of Applied Physics, 2005, 97, 074902.	1.1	32

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37	Nitrogen and Hydrogen Induced Trap Passivation at the SiO ₂ /4H-SiC Interface. Materials Science Forum, 2006, 527-529, 949-954.	0.3	32
38	Atomic-scale origins of bias-temperature instabilities in SiC/SiO ₂ structures. Applied Physics Letters, 2011, 98, .	1.5	31
39	Suppression of interface state generation upon electron injection in nitrided oxides grown on 4H-SiC. Applied Physics Letters, 2007, 91, .	1.5	30
40	Bias-Temperature Instabilities in 4H-SiC Metal-Oxide-Semiconductor Capacitors. IEEE Transactions on Device and Materials Reliability, 2012, 12, 391-398.	1.5	28
41	High electron mobility due to sodium ions in the gate oxide of SiC-metal-oxide-semiconductor field-effect transistors. Journal of Applied Physics, 2011, 109, .	1.1	27
42	Electron trapping in 4H-SiC MOS capacitors fabricated by pre-oxidation nitrogen implantation. Journal of Applied Physics, 2011, 109, .	1.1	22
43	Kinetics of nitrogen incorporation at the SiO ₂ /4H-SiC interface during an NO passivation. Applied Surface Science, 2014, 317, 593-597.	3.1	22
44	Chitosan solid electrolyte as electric double layer in multilayer MoS ₂ transistor for low-voltage operation. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2219-2225.	0.8	22
45	Atomic origin of high-temperature electron trapping in metal-oxide-semiconductor devices. Applied Physics Letters, 2015, 106, .	1.5	20
46	High-Mobility SiC MOSFETs with Chemically Modified Interfaces. Materials Science Forum, 0, 821-823, 749-752.	0.3	19
47	Nitrogen Plasma Processing of SiO ₂ /4H-SiC Interfaces. Journal of Electronic Materials, 2014, 43, 857-862.	1.0	17
48	Phospho-silicate glass gated 4H-SiC metal-oxide-semiconductor devices: Phosphorus concentration dependence. Journal of Applied Physics, 2016, 119, .	1.1	17
49	Tuning the threshold voltage from depletion to enhancement mode in a multilayer MoS ₂ transistor via oxygen adsorption and desorption. Physical Chemistry Chemical Physics, 2016, 18, 685-689.	1.3	17
50	Temperature Dependence of Inversion Layer Carrier Concentration and Hall Mobility in 4H-SiC MOSFETs. Materials Science Forum, 0, 717-720, 713-716.	0.3	16
51	3.7 mΩ-cm ² , 1500 V 4H-SiC DMOSFETs for advanced high power, high frequency applications. , 2011, , .		13
52	Roughness of the SiC/SiO ₂ vicinal interface and atomic structure of the transition layers. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2014, 32, .	0.9	13
53	Characterization of fast interface states in nitrogen- and phosphorus-treated 4H-SiC MOS capacitors. Semiconductor Science and Technology, 2015, 30, 075011.	1.0	13
54	Effects and mechanisms of RIE on SiC inversion layer mobility and its recovery. Applied Surface Science, 2015, 324, 30-34.	3.1	13

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55	4H-SiC MOSFETs With Borosilicate Glass Gate Dielectric and Antimony Counter-Doping. IEEE Electron Device Letters, 2017, 38, 1433-1436.	2.2	13
56	Determination of energetic distribution of interface states between gate metal and semiconductor in sub-micron devices from current-voltage characteristics. IEEE Transactions on Electron Devices, 2000, 47, 282-287.	1.6	12
57	Nitridation of the SiO ₂ /4H-SiC interface studied by surface-enhanced Raman spectroscopy. Applied Surface Science, 2007, 253, 5411-5414.	3.1	12
58	A novel technique for the fabrication of nanostructures on silicon carbide using amorphization and oxidation. Nanotechnology, 2006, 17, 4514-4518.	1.3	11
59	Channel Mobility Improvement in 4H-SiC MOSFETs Using a Combination of Surface Counter-Doping and NO Annealing. Materials Science Forum, 0, 821-823, 693-696.	0.3	11
60	Synthesis and characterization of porous TiO ₂ with wormhole-like framework structure. Journal of Porous Materials, 2008, 15, 21-27.	1.3	10
61	Si-like low-frequency noise characteristics of 4H-SiC MOSFETs. Semiconductor Science and Technology, 2011, 26, 085015.	1.0	10
62	Development of 1200 V, 3.7 mΩ·cm ² ; 4H-SiC DMOSFETs for Advanced Power Applications. Materials Science Forum, 0, 717-720, 1059-1064.	0.3	10
63	Dual-Gate MoS ₂ FET With a Coplanar-Gate Engineering. IEEE Transactions on Electron Devices, 2016, 63, 573-577.	1.6	10
64	Effect of Band-Edge Interface Traps and Transition Region Mobility on Transport in 4H-SiC MOSFETs. Materials Science Forum, 0, 645-648, 975-978.	0.3	9
65	Effect of NO Annealing on 6H- and 4H-SiC MOS Interface States. Materials Science Forum, 0, 645-648, 499-502.	0.3	8
66	Concentration, chemical bonding, and etching behavior of P and N at the SiO ₂ /SiC(0001) interface. Journal of Applied Physics, 2015, 118, 235303.	1.1	8
67	Electron beam-induced crystallization of Al ₂ O ₃ gate layer on $\hat{2}$ -Ga ₂ O ₃ MOS capacitors. Micron, 2021, 140, 102954.	1.1	8
68	Synthesis of some newer formazans and tetrazolium salts and their effect on Ranikhet disease virus and the vaccinia virus. Die Pharmazie, 1980, 35, 585-6.	0.3	8
69	Investigation of defects in Gd doped GaN using thermally stimulated current spectroscopy. Solid State Communications, 2016, 226, 25-28.	0.9	7
70	Mechanism of phosphorus passivation of near-interface oxide traps in 4H-SiC MOS devices investigated by CCDLTS and DFT calculation. Semiconductor Science and Technology, 2018, 33, 065005.	1.0	7
71	Effect of surface treatments on ALD Al ₂ O ₃ /4H-SiC metal-oxide-semiconductor field-effect transistors. Journal of Applied Physics, 2021, 129, 075702.	1.1	7
72	High dose gamma irradiation effects on properties of active layers in ZnO thin film transistors. Semiconductor Science and Technology, 2021, 36, 105011.	1.0	7

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73	3300 V, 30 A 4H-SiC power DMOSFETs. , 2009, , .		6
74	Hall-effect characterization of electron transport at SiO ₂ /4H-SiC MOS interfaces. Microelectronic Engineering, 2015, 147, 137-140.	1.1	6
75	Interface Trap Profiles in 4H- and 6H-SiC MOS Capacitors with Nitrogen- and Phosphorus-Doped Gate Oxides. Journal of Electronic Materials, 2017, 46, 2296-2300.	1.0	6
76	Analysis of the electronic and chemical structure in boron and phosphorus passivated 4H-SiC/SiO ₂ interfaces using HRTEM and STEM-EELS. Applied Physics Letters, 2018, 113, .	1.5	6
77	High temperature characteristics of nitric oxide annealed p-channel 4H-SiC metal oxide semiconductor field effect transistors. Journal of Applied Physics, 2021, 130, 225701.	1.1	6
78	Modification of the Oxide/Semiconductor Interface by High Temperature NO Treatments: A Combined EPR, NRA and XPS Study on Oxidized Porous and Bulk n-Type 4H-SiC. Materials Science Forum, 2005, 483-485, 277-280.	0.3	5
79	Bias-Temperature Instabilities and Radiation Effects on SiC MOSFETs. ECS Transactions, 2011, 35, 369-380.	0.3	5
80	Isotropic Oxidation by Plasma Oxidation and Investigation of RIE Induced Effects for Development of 4H-SiC Trench MOSFETs. Materials Science Forum, 0, 924, 444-448.	0.3	5
81	Interface passivation of Silicon Dioxide layers on Silicon Carbide. , 0, , .		4
82	Depth profiles, surface damage and lattice location of boron/deuterium co-doped diamond. Diamond and Related Materials, 2005, 14, 1600-1604.	1.8	4
83	Effects of antimony (Sb) on electron trapping near SiO ₂ /4H-SiC interfaces. Journal of Applied Physics, 2016, 120, .	1.1	4
84	Effective Channel Mobility in Epitaxial and Implanted 4H-SiC Lateral MOSFETs. Materials Research Society Symposia Proceedings, 2008, 1069, 1.	0.1	3
85	Sodium, Rubidium and Cesium in the Gate Oxides of SiC MOSFETs. Materials Science Forum, 0, 717-720, 453-456.	0.3	3
86	Water absorption in thermally grown oxides on SiC and Si: Bulk oxide and interface properties. Applied Physics Letters, 2014, 105, 191602.	1.5	3
87	Channel mobility and threshold voltage characterization of 4H-SiC MOSFET with antimony channel implantation. , 2015, , .		3
88	Analytical electron microscopy of (2 Å ⁻¹ 01) $\hat{\Gamma}$ ² -Ga ₂ O ₃ /SiO ₂ and (2 Å ⁻¹ 01) $\hat{\Gamma}$ ² -Ga ₂ O ₃ /Al ₂ O ₃ interface structures in MOS capacitors. Journal of Applied Physics, 2021, 129, 195705.	1.1	3
89	Nitrogen-induced changes in the electronic and structural properties of 4H-SiC (0001)/SiO ₂ interfaces. Physica Status Solidi (B): Basic Research, 0, , 2100224.	0.7	3
90	Near-interface Traps in n-type SiO ₂ /SiC MOS Capacitors from Energy-resolved CCDLTS. Materials Research Society Symposia Proceedings, 2010, 1246, 1.	0.1	2

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91	SPICE Modeling of Advanced Silicon Carbide High Temperature Integrated Circuits. Materials Science Forum, 0, 858, 1070-1073.	0.3	2
92	Enhancement of electrical characteristics of aâ€ZTO TFTs based on channel layers produced with alternating precursor concentration. Electronics Letters, 2018, 54, 1298-1300.	0.5	2
93	Temperature and Stress Metrology of Ultra-Wide Bandgap β -Ga α 2 α O α 3 α Thin Films. , 2018, , .		2
94	Advancements in SiC Power Devices Using Novel Interface Passivation Processes. Environmental Science and Engineering, 2014, , 47-52.	0.1	2
95	Passivation of Oxide Layers on 4H-SiC Using Sequential Anneals in Nitric Oxide and Hydrogen. Materials Research Society Symposia Proceedings, 2003, 786, 811.	0.1	1
96	Investigations on pre-oxidation nitrogen implantation for the improvement of channel mobility in 4H-SiC MOSFETs. , 2009, , .		1
97	4H-SiC DMOSFETs for power conversion applications successes and ongoing challenges. , 2010, , .		1
98	Channel Transport in 4H-SiC MOSFETs: A Brief Review. ECS Transactions, 2013, 58, 51-60.	0.3	1
99	The influence of SiC/SiO α 2 α interface morphology on the electrical characteristics of SiC MOS structures. , 2014, , .		1
100	Thin PSG Process for 4H-SiC MOSFET. Materials Science Forum, 0, 778-780, 513-516.	0.3	1
101	Stable Phosphorus Passivated SiO α 2 α /4H-SiC Interface Using Thin Oxides. Materials Science Forum, 0, 806, 139-142.	0.3	1
102	Deuterium absorption from the D2O exposure of oxidized 4H-SiC (0001), (0001 α), and (112 α) surfaces. Applied Physics Letters, 2015, 106, 123502.	1.5	1
103	Borosilicate Glass (BSG) as Gate Dielectric for 4H-SiC MOSFETs. Materials Science Forum, 0, 924, 502-505.	0.3	1
104	Reliability Testing of SiC MOS Devices at 500 α C. , 2019, , .		1
105	Silicon Dioxide α -Silicon Carbide Interfaces. , 2008, , .		1
106	Si/SiO α 2 α and SiC/SiO α 2 α Interfaces for MOSFETs â€“ Challenges and Advances. Materials Science Forum, 0, , 935-948.	0.3	1
107	Nitrogen and Hydrogen Induced Trap Passivation at the SiO α 2 α /4H-SiC Interface. Materials Science Forum, 0, , 949-954.	0.3	1
108	Modification of the Oxide/Semiconductor Interface by High Temperature NO Treatments: A Combined EPR, NRA and XPS Study on Oxidized Porous and Bulk n-Type 4H-SiC. Materials Science Forum, 0, , 277-280.	0.3	1

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109	Formation of carbon nanoclusters by implantation of keV carbon ions in fused silica followed by thermal annealing. , 2005, 5650, 35.		0
110	Impact of nitridation on negative and positive charge buildup in SiC gate oxides. , 2007, , .		0
111	Electron capture and emission at interface states in As-oxidized and NO-annealed SiO ₂ /4H-SiC. , 2007, , .		0
112	High-mobility enhancement-mode 4H SiC lateral nMOSFETs with atomic layer deposited Al ₂ O ₃ gate dielectric. , 2009, , .		0
113	Electron trapping at interface states in SiO ₂ /4H-SiC and SiO ₂ /6H-SiC MOS capacitors. , 2009, , .		0
114	Gate Stack Reliability of High-Mobility 4H SiC Lateral MOSFETs with Deposited Al ₂ O ₃ Gate Dielectric. Materials Research Society Symposia Proceedings, 2009, 1195, 155.	0.1	0
115	Modeling the Effect of Conduction Band Density of States on Interface Trap Occupation and Its Influence on 4H-SiC MOSFET Performance. , 2009, , .		0
116	Effects of N Incorporation on Electron Traps at SiO ₂ /SiC Interfaces. Materials Science Forum, 0, 717-720, 717-720.	0.3	0
117	4H-SiC MOSFETs with Si-Like Low-Frequency Noise Characteristics. Materials Science Forum, 0, 717-720, 1105-1108.	0.3	0
118	Magnetoresistance characterisation of 4H-SiC MOSFETs. , 2012, , .		0
119	Characterization of Near-Interface Traps at Dielectric/SiC Interfaces Using CCDLTS. Materials Science Forum, 2019, 963, 217-221.	0.3	0
120	(Invited, Digital Presentation) Interface Charge Trapping and Scattering in SiC MOSFET Channels. ECS Meeting Abstracts, 2022, MA2022-01, 1317-1317.	0.0	0