

# Sarit Dhar

## List of Publications by Year in descending order

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120  
papers

3,311  
citations

136950

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168389

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122  
all docs

122  
docs citations

122  
times ranked

2408  
citing authors

#	ARTICLE	IF	CITATIONS
1	(Invited, Digital Presentation) Interface Charge Trapping and Scattering in SiC MOSFET Channels. ECS Meeting Abstracts, 2022, MA2022-01, 1317-1317.	0.0	0
2	Electron beam-induced crystallization of Al <sub>2</sub> O <sub>3</sub> gate layer on $\hat{1}^2$ -Ga <sub>2</sub> O <sub>3</sub> MOS capacitors. Micron, 2021, 140, 102954.	2.2	8
3	Effect of surface treatments on ALD Al <sub>2</sub> O <sub>3</sub> /4H-SiC metal oxide semiconductor field-effect transistors. Journal of Applied Physics, 2021, 129, 075702.	2.5	7
4	Analytical electron microscopy of ( $2 \hat{1}^- 01$ ) $\hat{1}^2$ -Ga <sub>2</sub> O <sub>3</sub> /SiO <sub>2</sub> and ( $2 \hat{1}^- 01$ ) $\hat{1}^2$ -Ga <sub>2</sub> O <sub>3</sub> /Al <sub>2</sub> O <sub>3</sub> interface structures in MOS capacitors. Journal of Applied Physics, 2021, 129, 195705.	2.5	3
5	High dose gamma irradiation effects on properties of active layers in ZnO thin film transistors. Semiconductor Science and Technology, 2021, 36, 105011.	2.0	7
6	High temperature characteristics of nitric oxide annealed p-channel 4H-SiC metal oxide semiconductor field effect transistors. Journal of Applied Physics, 2021, 130, 225701.	2.5	6
7	Characterization of Near-Interface Traps at Dielectric/SiC Interfaces Using CCDLTS. Materials Science Forum, 2019, 963, 217-221.	0.3	0
8	Reliability Testing of SiC MOS Devices at 500 $\hat{A}$ °C. , 2019, , .		1
9	Delivery of lethal dsRNAs in insect diets by branched amphiphilic peptide capsules. Journal of Controlled Release, 2018, 273, 139-146.	9.9	69
10	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.	2.0	7
11	Thermal characterization of gallium oxide Schottky barrier diodes. Review of Scientific Instruments, 2018, 89, 114903.	1.3	41
12	Analysis of the electronic and chemical structure in boron and phosphorus passivated $\langle 110 \rangle$ -SiC/SiO <sub>2</sub> interfaces using HRTEM and STEM-EELS. Applied Physics Letters, 2018, 113, .	3.3	6
13	Enhancement of electrical characteristics of $\hat{A}$ €ZTO TFTs based on channel layers produced with alternating precursor concentration. Electronics Letters, 2018, 54, 1298-1300.	1.0	2
14	Temperature and Stress Metrology of Ultra-Wide Bandgap $\hat{1}^2$ -Ga <sub>2</sub> O <sub>3</sub> /SiO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> Thin Films. , 2018, , .		2
15	Interface trapping in ( $2 \hat{1}^- 01$ ) $\hat{1}^2$ -Ga <sub>2</sub> O <sub>3</sub> MOS capacitors with deposited dielectrics. Applied Physics Letters, 2018, 112, .	3.3	42
16	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.	2.2	6
17	4H-SiC MOSFETs With Borosilicate Glass Gate Dielectric and Antimony Counter-Doping. IEEE Electron Device Letters, 2017, 38, 1433-1436.	3.9	13
18	Effects of antimony (Sb) on electron trapping near SiO <sub>2</sub> /4H-SiC interfaces. Journal of Applied Physics, 2016, 120, .	2.5	4

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19	Role of self-trapped holes in the photoconductive gain of $\text{In}^2$ -gallium oxide Schottky diodes. Journal of Applied Physics, 2016, 119, .	2.5	141
20	Phospho-silicate glass gated 4H-SiC metal-oxide-semiconductor devices: Phosphorus concentration dependence. Journal of Applied Physics, 2016, 119, .	2.5	17
21	Analysis of temperature dependent forward characteristics of $\text{Ni}/\text{SiO}_2/\text{In}^2\text{-Ga}_2\text{O}_3$ Schottky diodes. Semiconductor Science and Technology, 2016, 31, 115002.	2.0	55
22	Tuning the threshold voltage from depletion to enhancement mode in a multilayer $\text{MoS}_2$ transistor via oxygen adsorption and desorption. Physical Chemistry Chemical Physics, 2016, 18, 685-689.	2.8	17
23	Investigation of defects in Gd doped GaN using thermally stimulated current spectroscopy. Solid State Communications, 2016, 226, 25-28.	1.9	7
24	Dual-Gate $\text{MoS}_2$ FET With a Coplanar-Gate Engineering. IEEE Transactions on Electron Devices, 2016, 63, 573-577.	3.0	10
25	Concentration, chemical bonding, and etching behavior of P and N at the $\text{SiO}_2/\text{SiC}(0001)$ interface. Journal of Applied Physics, 2015, 118, 235303.	2.5	8
26	Chitosan solid electrolyte as electric double layer in multilayer $\text{MoS}_2$ transistor for low-voltage operation. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2219-2225.	1.8	22
27	Atomic origin of high-temperature electron trapping in metal-oxide-semiconductor devices. Applied Physics Letters, 2015, 106, .	3.3	20
28	Channel mobility and threshold voltage characterization of 4H-SiC MOSFET with antimony channel implantation. , 2015, , .		3
29	Characterization of fast interface states in nitrogen- and phosphorus-treated 4H-SiC MOS capacitors. Semiconductor Science and Technology, 2015, 30, 075011.	2.0	13
30	Silicon carbide: A unique platform for metal-oxide-semiconductor physics. Applied Physics Reviews, 2015, 2, .	11.3	225
31	Hall-effect characterization of electron transport at $\text{SiO}_2/4\text{H-SiC}$ MOS interfaces. Microelectronic Engineering, 2015, 147, 137-140.	2.4	6
32	Deuterium absorption from the D <sub>2</sub> O exposure of oxidized 4H-SiC (0001), (0001 $\bar{A}$ ), and (112 $\bar{A}$ 0) surfaces. Applied Physics Letters, 2015, 106, 123502.	3.3	1
33	Effects and mechanisms of RIE on SiC inversion layer mobility and its recovery. Applied Surface Science, 2015, 324, 30-34.	6.1	13
34	Water absorption in thermally grown oxides on SiC and Si: Bulk oxide and interface properties. Applied Physics Letters, 2014, 105, 191602.	3.3	3
35	The influence of $\text{SiC}/\text{SiO}_2$ interface morphology on the electrical characteristics of SiC MOS structures. , 2014, , .		1
36	High mobility 4H-SiC (0001) transistors using alkali and alkaline earth interface layers. Applied Physics Letters, 2014, 105, .	3.3	67

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37	Roughness of the SiC/SiO <sub>2</sub> vicinal interface and atomic structure of the transition layers. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2014, 32, .	2.1	13
38	High Channel Mobility 4H-SiC MOSFETs by Antimony Counter-Doping. IEEE Electron Device Letters, 2014, 35, 894-896.	3.9	52
39	Nitrogen Plasma Processing of SiO <sub>2</sub> /4H-SiC Interfaces. Journal of Electronic Materials, 2014, 43, 857-862.	2.2	17
40	Kinetics of nitrogen incorporation at the SiO <sub>2</sub> /4H-SiC interface during an NO passivation. Applied Surface Science, 2014, 317, 593-597.	6.1	22
41	Advancements in SiC Power Devices Using Novel Interface Passivation Processes. Environmental Science and Engineering, 2014, , 47-52.	0.2	2
42	Enhanced Inversion Mobility on 4H-SiC $\overline{\text{SiC}}_0$ Using Phosphorus and Nitrogen Interface Passivation. IEEE Electron Device Letters, 2013, 34, 181-183.	3.9	97
43	Origins of Low-Frequency Noise and Interface Traps in 4H-SiC MOSFETs. IEEE Electron Device Letters, 2013, 34, 117-119.	3.9	37
44	High-Mobility Stable 4H-SiC MOSFETs Using a Thin PSG Interfacial Passivation Layer. IEEE Electron Device Letters, 2013, 34, 175-177.	3.9	74
45	Temperature Dependence and Postirradiation Annealing Response of the $1/f$ Noise of 4H-SiC MOSFETs. IEEE Transactions on Electron Devices, 2013, 60, 2361-2367.	3.0	69
46	Channel Transport in 4H-SiC MOSFETs: A Brief Review. ECS Transactions, 2013, 58, 51-60.	0.5	1
47	Bias-Temperature Instabilities in 4H-SiC Metal-Oxide-Semiconductor Capacitors. IEEE Transactions on Device and Materials Reliability, 2012, 12, 391-398.	2.0	28
48	Magneto-resistance characterisation of 4H-SiC MOSFETs. , 2012, , .		0
49	Static Performance of 20A, 1200V 4H-SiC Power MOSFETs at Temperatures of $\sim 187^\circ\text{C}$ to $300^\circ\text{C}$ . Journal of Electronic Materials, 2012, 41, 910-914.	2.2	37
50	Bias-Temperature Instabilities and Radiation Effects on SiC MOSFETs. ECS Transactions, 2011, 35, 369-380.	0.5	5
51	Electron trapping in 4H-SiC MOS capacitors fabricated by pre-oxidation nitrogen implantation. Journal of Applied Physics, 2011, 109, .	2.5	22
52	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, .	2.5	27
53	Effects of Bias on the Irradiation and Annealing Responses of 4H-SiC MOS Devices. IEEE Transactions on Nuclear Science, 2011, 58, 2925-2929.	2.0	37
54	3.7 m <sup>2</sup> , 1500 V 4H-SiC DMOSFETs for advanced high power, high frequency applications. , 2011, , .		13

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55	Atomic-scale origins of bias-temperature instabilities in SiC/SiO <sub>2</sub> structures. Applied Physics Letters, 2011, 98, .	3.3	31
56	Si-like low-frequency noise characteristics of 4H-SiC MOSFETs. Semiconductor Science and Technology, 2011, 26, 085015.	2.0	10
57	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.	3.0	36
58	Near-interface Traps in n-type SiO <sub>2</sub> /SiC MOS Capacitors from Energy-resolved CCDLTS. Materials Research Society Symposia Proceedings, 2010, 1246, 1.	0.1	2
59	Inversion layer carrier concentration and mobility in 4H-SiC metal-oxide-semiconductor field-effect transistors. Journal of Applied Physics, 2010, 108, .	2.5	102
60	4H-SiC DMOSFETs for power conversion applications successes and ongoing challenges. , 2010, , .		1
61	High-mobility enhancement-mode 4H SiC lateral nMOSFETs with atomic layer deposited Al <sub>2</sub> O <sub>3</sub> gate dielectric. , 2009, , .		0
62	High-mobility enhancement-mode 4H-SiC lateral field-effect transistors utilizing atomic layer deposited Al <sub>2</sub> O <sub>3</sub> gate dielectric. Applied Physics Letters, 2009, 95, .	3.3	39
63	Investigations on pre-oxidation nitrogen implantation for the improvement of channel mobility in 4H-SiC MOSFETs. , 2009, , .		1
64	Electron trapping at interface states in SiO <sub>2</sub> /4H-SiC and SiO <sub>2</sub> /6H-SiC MOS capacitors. , 2009, , .		0
65	Density of interface states, electron traps, and hole traps as a function of the nitrogen density in SiO <sub>2</sub> on SiC. Journal of Applied Physics, 2009, 105, .	2.5	158
66	Gate Stack Reliability of High-Mobility 4H SiC Lateral MOSFETs with Deposited Al <sub>2</sub> O <sub>3</sub> Gate Dielectric. Materials Research Society Symposia Proceedings, 2009, 1195, 155.	0.1	0
67	Chemical Properties of Oxidized Silicon Carbide Surfaces upon Etching in Hydrofluoric Acid. Journal of the American Chemical Society, 2009, 131, 16808-16813.	13.7	124
68	Modeling the Effect of Conduction Band Density of States on Interface Trap Occupation and Its Influence on 4H-SiC MOSFET Performance. , 2009, , .		0
69	3300 V, 30 A 4H-SiC power DMOSFETs. , 2009, , .		6
70	Synthesis and characterization of porous TiO <sub>2</sub> with wormhole-like framework structure. Journal of Porous Materials, 2008, 15, 21-27.	2.6	10
71	Effective Channel Mobility in Epitaxial and Implanted 4H-SiC Lateral MOSFETs. Materials Research Society Symposia Proceedings, 2008, 1069, 1.	0.1	3
72	Ultrashallow defect states at SiO <sub>2</sub> /4H-SiC interfaces. Applied Physics Letters, 2008, 92, 102112.	3.3	45

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73	Pressure dependence of SiO <sub>2</sub> growth kinetics and electrical properties on SiC. Journal of Applied Physics, 2008, 103, 023522.	2.5	52
74	Increase in oxide hole trap density associated with nitrogen incorporation at the SiO <sub>2</sub> /SiC interface. Journal of Applied Physics, 2008, 103, .	2.5	69
75	Electron capture and emission properties of interface states in thermally oxidized and NO-annealed SiO <sub>2</sub> /4H-SiC. Journal of Applied Physics, 2008, 103, .	2.5	56
76	Silicon Dioxide-Silicon Carbide Interfaces. , 2008, , .		1
77	Impact of nitridation on negative and positive charge buildup in SiC gate oxides. , 2007, , .		0
78	Suppression of interface state generation upon electron injection in nitrided oxides grown on 4H-SiC. Applied Physics Letters, 2007, 91, .	3.3	30
79	Electron capture and emission at interface states in As-oxidized and NO-annealed SiO <sub>2</sub> /4H-SiC. , 2007, , .		0
80	Bonding at the SiC-SiO <sub>2</sub> Interface and the Effects of Nitrogen and Hydrogen. Physical Review Letters, 2007, 98, 026101.	7.8	171
81	Nitridation of the SiO <sub>2</sub> /4H-SiC interface studied by surface-enhanced Raman spectroscopy. Applied Surface Science, 2007, 253, 5411-5414.	6.1	12
82	A novel technique for the fabrication of nanostructures on silicon carbide using amorphization and oxidation. Nanotechnology, 2006, 17, 4514-4518.	2.6	11
83	Nitrogen and Hydrogen Induced Trap Passivation at the SiO <sub>2</sub> /4H-SiC Interface. Materials Science Forum, 2006, 527-529, 949-954.	0.3	32
84	Si/SiO <sub>2</sub> and SiC/SiO <sub>2</sub> Interfaces for MOSFETs – Challenges and Advances. Materials Science Forum, 2006, 527-529, 935-948.	0.3	54
85	Total Dose Radiation Response of Nitrided and Non-nitrided SiO <sub>2</sub> /4H-SiC MOS Capacitors. IEEE Transactions on Nuclear Science, 2006, 53, 3687-3692.	2.0	36
86	Formation of carbon nanoclusters by implantation of keV carbon ions in fused silica followed by thermal annealing. , 2005, 5650, 35.		0
87	Interface Passivation for Silicon Dioxide Layers on Silicon Carbide. MRS Bulletin, 2005, 30, 288-292.	3.5	75
88	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
89	High-resolution elemental profiles of the silicon dioxide-4H-silicon carbide interface. Journal of Applied Physics, 2005, 97, 104920.	2.5	46
90	Nitridation anisotropy in SiO <sub>2</sub> -4H-SiC. Journal of Applied Physics, 2005, 97, 074902.	2.5	32

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91	Depth profiles, surface damage and lattice location of boron/deuterium co-doped diamond. Diamond and Related Materials, 2005, 14, 1600-1604.	3.9	4
92	Interface trap passivation for SiO <sub>2</sub> /(0001) C-terminated 4H-SiC. Journal of Applied Physics, 2005, 98, 014902.	2.5	69
93	Graphitic features on SiC surface following oxidation and etching using surface enhanced Raman spectroscopy. Applied Physics Letters, 2004, 85, 3495-3497.	3.3	48
94	Effect of nitric oxide annealing on the interface trap density near the conduction bandedge of 4H-SiC at the oxide/(112̄,0) 4H-SiC interface. Applied Physics Letters, 2004, 84, 1498-1500.	3.3	72
95	Modified Deal Grove model for the thermal oxidation of silicon carbide. Journal of Applied Physics, 2004, 95, 4953-4957.	2.5	213
96	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
97	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.	3.0	12
98	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.	0.5	8
99	Interface passivation of Silicon Dioxide layers on Silicon Carbide. , 0, , .		4
100	Critical Issues for MOS Based Power Devices in 4H-SiC. Materials Science Forum, 0, 615-617, 743-748.	0.3	41
101	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
102	Effect of NO Annealing on 6H- and 4H-SiC MOS Interface States. Materials Science Forum, 0, 645-648, 499-502.	0.3	8
103	Performance, Reliability, and Robustness of 4H-SiC Power DMOSFETs. Materials Science Forum, 0, 645-648, 969-974.	0.3	41
104	Effects of N Incorporation on Electron Traps at SiO <sub>2</sub> /SiC Interfaces. Materials Science Forum, 0, 717-720, 717-720.	0.3	0
105	4H-SiC MOSFETs with Si-Like Low-Frequency Noise Characteristics. Materials Science Forum, 0, 717-720, 1105-1108.	0.3	0
106	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
107	Development of 1200 V, 3.7 m <sup>2</sup> -cm <sup>2</sup> ; 4H-SiC DMOSFETs for Advanced Power Applications. Materials Science Forum, 0, 717-720, 1059-1064.	0.3	10
108	Sodium, Rubidium and Cesium in the Gate Oxides of SiC MOSFETs. Materials Science Forum, 0, 717-720, 453-456.	0.3	3

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109	Development of 15 kV 4H-SiC IGBTs. Materials Science Forum, 0, 717-720, 1135-1138.	0.3	49
110	Thin PSG Process for 4H-SiC MOSFET. Materials Science Forum, 0, 778-780, 513-516.	0.3	1
111	Stable Phosphorus Passivated SiO <sub>2</sub> /4H-SiC Interface Using Thin Oxides. Materials Science Forum, 0, 806, 139-142.	0.3	1
112	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
113	High-Mobility SiC MOSFETs with Chemically Modified Interfaces. Materials Science Forum, 0, 821-823, 749-752.	0.3	19
114	SPICE Modeling of Advanced Silicon Carbide High Temperature Integrated Circuits. Materials Science Forum, 0, 858, 1070-1073.	0.3	2
115	Borosilicate Glass (BSG) as Gate Dielectric for 4H-SiC MOSFETs. Materials Science Forum, 0, 924, 502-505.	0.3	1
116	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
117	Si/SiO <sub>2</sub> and SiC/SiO <sub>2</sub> Interfaces for MOSFETs – Challenges and Advances. Materials Science Forum, 0, , 935-948.	0.3	1
118	Nitrogen and Hydrogen Induced Trap Passivation at the SiO <sub>2</sub> /4H-SiC Interface. Materials Science Forum, 0, , 949-954.	0.3	1
119	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
120	Nitrogen-induced changes in the electronic and structural properties of 4H-SiC (0001)/SiO <sub>2</sub> interfaces. Physica Status Solidi (B): Basic Research, 0, , 2100224.	1.5	3