

Shinsuke Harada

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papers

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h-index

32
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142
ext. papers

1,774
ext. citations

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avg, IF

4.43
L-index

#	Paper	IF	Citations
131	Improved Channel Mobility in 4H-SiC MOSFETs by Boron Passivation. <i>IEEE Electron Device Letters</i> , 2014 , 35, 1176-1178	4.4	83
130	Excellent effects of hydrogen postoxidation annealing on inversion channel mobility of 4H-SiC MOSFET fabricated on (11 2 0) face. <i>IEEE Electron Device Letters</i> , 2002 , 23, 13-15	4.4	83
129	Characterization of traps at nitrided SiO ₂ /SiC interfaces near the conduction band edge by using Hall effect measurements. <i>Applied Physics Express</i> , 2017 , 10, 046601	2.4	72
128	Relationship between channel mobility and interface state density in SiC metaloxide semiconductor field-effect transistor. <i>Journal of Applied Physics</i> , 2002 , 91, 1568-1571	2.5	58
127	Development of Ultrahigh-Voltage SiC Devices. <i>IEEE Transactions on Electron Devices</i> , 2015 , 62, 396-404	2.9	52
126	High channel mobility in normally-off 4H-SiC buried channel MOSFETs. <i>IEEE Electron Device Letters</i> , 2001 , 22, 272-274	4.4	47
125	Homogeneous Amorphization in High-Energy Ion Implanted Si. <i>Physical Review Letters</i> , 1997 , 78, 2980-2982	4.2	46
124	Correlation between channel mobility and shallow interface traps in SiC metaloxide semiconductor field-effect transistors. <i>Journal of Applied Physics</i> , 2002 , 92, 6230-6234	2.5	42
123	Strong dependence of the inversion mobility of 4H and 6H SiC(0001) MOSFETs on the water content in pyrogenic re-oxidation annealing. <i>IEEE Electron Device Letters</i> , 2002 , 23, 136-138	4.4	42
122	3.3-kV-Class 4H-SiC MeV-Implanted UMOSFET With Reduced Gate Oxide Field. <i>IEEE Electron Device Letters</i> , 2016 , 37, 314-316	4.4	41
121	Temperature-dependent analysis of conduction mechanism of leakage current in thermally grown oxide on 4H-SiC. <i>Journal of Applied Physics</i> , 2015 , 117, 024505	2.5	37
120	Evolution of threading screw dislocation conversion during solution growth of 4H-SiC. <i>APL Materials</i> , 2013 , 1, 022109	5.7	34
119	Recrystallization of MeV Si implanted 6H-SiC. <i>Applied Physics Letters</i> , 1996 , 69, 3534-3536	3.4	31
118	8.5 m/spl Omega/ /spl middot/ cm/sub 2/ 600-V double-epitaxial MOSFETs in 4H-SiC. <i>IEEE Electron Device Letters</i> , 2004 , 25, 292-294	4.4	24
117	Threshold-voltage instability in 4H-SiC MOSFETs with nitrided gate oxide revealed by non-relaxation method. <i>Japanese Journal of Applied Physics</i> , 2016 , 55, 04ER11	1.4	23
116	Interface carbon defects at 4H-SiC(0001)/SiO ₂ interfaces studied by electron-spin-resonance spectroscopy. <i>Applied Physics Letters</i> , 2018 , 113, 061605	3.4	23
115	Evaluation of Schottky barrier height on 4H-SiC m-face $\{1\bar{1}00\}$ for Schottky barrier diode wall integrated trench MOSFET. <i>Japanese Journal of Applied Physics</i> , 2017 , 56, 04CR08	1.4	22

114	Determination of optimum structure of 4H-SiC Trench MOSFET 2012 ,		22
113	Isotropic Channel Mobility in UMOSFETs on 4H-SiC C-Face with Vicinal Off-Angle. <i>Materials Science Forum</i> , 2010 , 645-648, 999-1004	0.4	22
112	Amorphization and solid phase epitaxy of high-energy ion implanted 6H-SiC. <i>Nuclear Instruments & Methods in Physics Research B</i> , 1997 , 127-128, 195-197	1.2	22
111	Single photon sources in 4H-SiC metal-oxide-semiconductor field-effect transistors. <i>Applied Physics Letters</i> , 2018 , 112, 031105	3.4	21
110	Body PiN diode inactivation with low on-resistance achieved by a 1.2 kV-class 4H-SiC SWITCH-MOS 2017 ,		21
109	Enantioselective amplification on circularly polarized laser-induced chiral nucleation from a NaClO ₃ solution containing Ag nanoparticles. <i>CrystEngComm</i> , 2016 , 18, 7441-7448	3.3	18
108	Anomalous carbon clusters in 4H-SiC/SiO ₂ interfaces. <i>Journal of Applied Physics</i> , 2019 , 125, 065302	2.5	17
107	Transmission electron microscopy studies of crystal-to-amorphous transition in ion implanted silicon. <i>Journal of Applied Physics</i> , 1997 , 81, 1126-1130	2.5	15
106	Influence of Post-Oxidation Process on the MOS Interface and MOSFETs Properties. <i>Materials Science Forum</i> , 2001 , 353-356, 643-646	0.4	15
105	Microstructural evolution of oxygen implanted silicon during annealing processes. <i>Nuclear Instruments & Methods in Physics Research B</i> , 1999 , 148, 311-316	1.2	15
104	Characterization of near-interface traps at 4H-SiC metal-oxide-semiconductor interfaces using modified distributed circuit model. <i>Applied Physics Express</i> , 2017 , 10, 064101	2.4	14
103	Insight into enhanced field-effect mobility of 4H-SiC MOSFET with Ba incorporation studied by Hall effect measurements. <i>AIP Advances</i> , 2018 , 8, 085305	1.5	14
102	Threshold Voltage Instability of SiC-MOSFETs on Various Crystal Faces. <i>Materials Science Forum</i> , 2014 , 778-780, 521-524	0.4	14
101	1.8 m ² , 10 A Power MOSFET in 4H-SiC 2006 ,		14
100	Two-step SiC solution growth for dislocation reduction. <i>Journal of Crystal Growth</i> , 2017 , 468, 874-878	1.6	13
99	Improvement of Channel Mobility in 4H-SiC C-Face MOSFETs by H ₂ Rich Wet Re-Oxidation. <i>Materials Science Forum</i> , 2014 , 778-780, 975-978	0.4	13
98	Ideal phonon-scattering-limited mobility in inversion channels of 4H-SiC(0001) MOSFETs with ultralow net doping concentrations. <i>Applied Physics Letters</i> , 2019 , 115, 132102	3.4	12
97	Impact of crystal faces of 4H-SiC in SiO ₂ /4H-SiC structures on interface trap densities and mobilities. <i>Applied Physics Express</i> , 2019 , 12, 021003	2.4	12

96	Carbon dangling-bond center (carbon Pb center) at 4H-SiC(0001)/SiO ₂ interface. <i>Applied Physics Letters</i> , 2020 , 116, 071604	3.4	12
95	Evaluation of a SiC power module using low-on-resistance IEMOSFET and JBS for high power density power converters 2010 ,		12
94	Improved Channel Mobility in Normally-Off 4H-SiC MOSFETs with Buried Channel Structure. <i>Materials Science Forum</i> , 2002 , 389-393, 1069-1072	0.4	12
93	Improvements in Electrical Properties of n-Type-Implanted 4H-SiC Substrates Using High-Temperature Rapid Thermal Annealing. <i>Materials Science Forum</i> , 2002 , 389-393, 795-798	0.4	12
92	Effect of boron incorporation on slow interface traps in SiO ₂ /4H-SiC structures. <i>Applied Physics A: Materials Science and Processing</i> , 2017 , 123, 1	2.6	11
91	Self-aligned formation of the trench bottom shielding region in 4H-SiC trench gate MOSFET. <i>Japanese Journal of Applied Physics</i> , 2016 , 55, 04ER02	1.4	11
90	(Invited) SiC MOS Interface States: Difference between Si Face and C Face. <i>ECS Transactions</i> , 2013 , 58, 55-60	1	11
89	Influence of Processing and of Material Defects on the Electrical Characteristics of SiC-SBDs and SiC-MOSFETs. <i>Materials Science Forum</i> , 2010 , 645-648, 655-660	0.4	11
88	4H-SiC Lateral RESURF MOSFET with a Buried Channel Structure. <i>Materials Science Forum</i> , 2003 , 433-436, 753-756	0.4	11
87	Role of Trench Bottom Shielding Region on Switching Characteristics of 4H-SiC Double-Trench Mosfets. <i>Materials Science Forum</i> , 2018 , 924, 748-751	0.4	11
86	Dynamic characteristics of large current capacity module using 16-kV ultrahigh voltage SiC flip-type n-channel IE-IGBT 2014 ,		10
85	Evaluation of silicon- and carbon-face SiO ₂ /SiC MOS interface quality based on scanning nonlinear dielectric microscopy. <i>Applied Physics Letters</i> , 2017 , 111, 061602	3.4	10
84	Effects of Pyrogenic Reoxidation Annealing on Inversion Channel Mobility of 4H-SiC Metal-Oxide-Semiconductor Field-Effect Transistor Fabricated on Si(111) Face. <i>Japanese Journal of Applied Physics</i> , 2001 , 40, L1201-L1203	1.4	10
83	Reduction of interface states by hydrogen treatment at the aluminum oxide/4H-SiC Si-face interface. <i>AIP Advances</i> , 2016 , 6, 105206	1.5	10
82	Electron-spin-resonance and electrically detected-magnetic-resonance characterization on PbC center in various 4H-SiC(0001)/SiO ₂ interfaces. <i>Journal of Applied Physics</i> , 2020 , 127, 145301	2.5	9
81	3.3 kV-Class 4H-SiC UMOSFET by Double-Trench with Tilt Angle Ion Implantation. <i>Materials Science Forum</i> , 2016 , 858, 974-977	0.4	9
80	Impact of oxide thickness on the density distribution of near-interface traps in 4H-SiC MOS capacitors. <i>Japanese Journal of Applied Physics</i> , 2018 , 57, 06KA04	1.4	9
79	4.3 m ² , 1100 V 4H-SiC Implantation and Epitaxial MOSFET. <i>Materials Science Forum</i> , 2006 , 527-529, 1281-1284	0.4	9

78	Significant Improvement of Inversion Channel Mobility in 4H-SiC MOSFET on (11-20) Face Using Hydrogen Post-Oxidation Annealing. <i>Materials Science Forum</i> , 2002 , 389-393, 1061-1064	0.4	9
77	Sub-nanometer-scale depth profiling of nitrogen atoms in SiO ₂ /4H-SiC structures treated with NO annealing. <i>Applied Physics Express</i> , 2018 , 11, 101303	2.4	9
76	High-temperature Performance of 1.2 kV-class SiC Super Junction MOSFET 2019 ,		8
75	First Demonstration of Short-Circuit Capability for a 1.2 kV SiC SWITCH-MOS. <i>IEEE Journal of the Electron Devices Society</i> , 2019 , 7, 613-620	2.3	8
74	Exact Characterization of Threshold Voltage Instability in 4H-SiC MOSFETs by Non-Relaxation Method. <i>Materials Science Forum</i> , 2015 , 821-823, 685-688	0.4	8
73	Accurate evaluation of fast threshold voltage shift for SiC MOS devices under various gate bias stress conditions. <i>Japanese Journal of Applied Physics</i> , 2018 , 57, 04FA07	1.4	8
72	Influence of Metallization Annealing on Channel Mobility in 4H-SiC MOSFET on Carbon Face. <i>Materials Science Forum</i> , 2008 , 600-603, 675-678	0.4	8
71	High Inversion Channel Mobility of 4H-SiC MOSFETs Fabricated on C(000-1) Epitaxial Substrate with Vicinal (Below 1°) Off-Angle. <i>Materials Science Forum</i> , 2006 , 527-529, 1043-1046	0.4	8
70	Systematic investigation on in-plane anisotropy of surface and buried channel mobility of metal-oxide-semiconductor field-effect-transistors on Si-, a-, and m-face 4H-SiC. <i>Applied Physics Letters</i> , 2015 , 106, 103506	3.4	7
69	Local deep level transient spectroscopy using super-higher-order scanning nonlinear dielectric microscopy. <i>Microelectronics Reliability</i> , 2016 , 64, 566-569	1.2	7
68	Demonstration and analysis of channel mobility, trapped electron density and Hall effect at SiO ₂ /SiC (000-1) interfaces. <i>Japanese Journal of Applied Physics</i> , 2019 , 58, SBBD04	1.4	6
67	(Invited) Interface Defects in C-face 4H-SiC MOSFETs: An Electrically-Detected-Magnetic-Resonance Study. <i>ECS Transactions</i> , 2017 , 80, 147-153	1	6
66	Electrical Properties of MOS Structures on 4H-SiC (11-20) Face. <i>Materials Science Forum</i> , 2013 , 740-742, 621-624	0.4	6
65	Demonstration of motor drive with SiC normally-off IBMOSFET/SBD power converter 2007 ,		6
64	Low on-resistance in inversion channel IEMOSFET formed on 4H-SiC C-face substrate		6
63	A Large Reduction in Interface-State Density for MOS Capacitor on 4H-SiC (11-20) Face Using H ₂ and H ₂ O Vapor Atmosphere Post-Oxidation Annealing. <i>Materials Science Forum</i> , 2002 , 389-393, 1057-1060	0.4	6
62	Recrystallization and electrical properties of MeV P implanted 6H-SiC. <i>Journal of Applied Physics</i> , 2000 , 87, 2655-2657	2.5	6
61	Demonstration of Superior Electrical Characteristics for 1.2 kV SiC Schottky Barrier Diode-Wall Integrated Trench MOSFET With Higher Schottky Barrier Height Metal. <i>IEEE Electron Device Letters</i> , 2020 , 41, 1810-1813	4.4	6

60	Ultra-Low Specific on-Resistance Achieved in 3.3 kV-Class SiC Superjunction MOSFET 2021 ,		6
59	Mobility-limiting Coulomb scattering in nitrided 4H-SiC inversion channel on 1 1 00 m-face and 11 2 00 a-face characterized by Hall effect measurements. <i>Applied Physics Letters</i> , 2019 , 115, 132106	3-4	5
58	V-groove trench gate SiC MOSFET with a double reduced surface field junction termination extensions structure. <i>Japanese Journal of Applied Physics</i> , 2019 , 58, SBBD11	1-4	5
57	Electrically detected magnetic resonance study on interface defects at nitrided Si-face, a-face, and m-face 4H-SiC/SiO ₂ interfaces. <i>Applied Physics Letters</i> , 2020 , 116, 171602	3-4	5
56	Hole trapping in SiC-MOS devices evaluated by fast-capacitance-voltage method. <i>Japanese Journal of Applied Physics</i> , 2018 , 57, 04FR15	1-4	5
55	Electrically detected-magnetic-resonance identifications of defects at 4H-SiC(000 1 0)/SiO ₂ interfaces with wet oxidation. <i>Applied Physics Letters</i> , 2019 , 115, 151602	3-4	5
54	(Invited) SiC MOS Interface States: Similarity and Dissimilarity from Silicon. <i>ECS Transactions</i> , 2013 , 50, 305-311	1	5
53	13-kV, 20-A 4H-SiC PiN Diodes for Power System Applications. <i>Materials Science Forum</i> , 2014 , 778-780, 855-858	0-4	5
52	High Performance SiC IEMOSFET/SBD Module. <i>Materials Science Forum</i> , 2012 , 717-720, 1053-1058	0-4	5
51	Analysis of fast and slow responses in AC conductance curves for p-type SiC MOS capacitors. <i>Japanese Journal of Applied Physics</i> , 2018 , 57, 06KA06	1-4	5
50	Dynamic Characterization of the Threshold Voltage Instability under the Pulsed Gate Bias Stress in 4H-SiC MOSFET. <i>Materials Science Forum</i> , 2017 , 897, 549-552	0-4	4
49	Comparative Study of Characteristics of Lateral MOSFETs Fabricated on 4H-SiC (11-20) and (1-100) Faces. <i>Materials Science Forum</i> , 2015 , 821-823, 721-724	0-4	4
48	Conduction mechanisms of oxide leakage current in p-channel 4H-SiC MOSFETs. <i>Japanese Journal of Applied Physics</i> , 2020 , 59, 044003	1-4	4
47	Nitridation Effects of Gate Oxide on Channel Properties of SiC Trench MOSFETs. <i>Materials Science Forum</i> , 2014 , 778-780, 615-618	0-4	4
46	Difference in electron mobility at 4H-SiC/SiO ₂ interfaces with various crystal faces originating from effective-field-dependent scattering. <i>Applied Physics Letters</i> , 2020 , 117, 042101	3-4	4
45	First Demonstration of a Monolithic SiC Power IC Integrating a Vertical MOSFET with a CMOS Gate Buffer 2021 ,		4
44	Low Rons in 3kV 4H-SiC UMOSFET with MeV Implanted Buried P-Base Region. <i>Materials Science Forum</i> , 2015 , 821-823, 769-772	0-4	3
43	Highly Efficient Switching Operation of 1.2 kV-Class SiC SWITCH-MOS. <i>Materials Science Forum</i> , 2020 , 1004, 795-800	0-4	3

42	Reliability Improvement and Optimization of Trench Orientation of 4H-SiC Trench-Gate Oxide. <i>Materials Science Forum</i> , 2014 , 778-780, 537-540	0.4	3
41	High Temperature Ion Implantation and Activation Annealing Technologies for Mass Production of SiC Power Devices. <i>Materials Science Forum</i> , 2012 , 717-720, 821-824	0.4	3
40	Study on advanced power device performance under real circuit conditions with an exact power loss simulator 2007 ,		3
39	Analysis of Low On-Resistance in 4H-SiC Double-Epitaxial MOSFET. <i>Materials Science Forum</i> , 2005 , 483-485, 813-816	0.4	3
38	Correlation between Inversion Channel Mobility and Interface Traps near the Conduction Band in SiC MOSFETs. <i>Materials Science Forum</i> , 2002 , 389-393, 1045-1048	0.4	3
37	The Effect of E-Ray Irradiation on Optical Properties of Single Photon Sources in 4H-SiC MOSFET. <i>Materials Science Forum</i> , 2020 , 1004, 361-366	0.4	2
36	Oxidation-Process Dependence of Single Photon Sources Embedded in 4H-SiC MOSFETs. <i>Materials Science Forum</i> , 2018 , 924, 281-284	0.4	2
35	Development of ultrahigh voltage SiC power devices 2014 ,		2
34	C-Face Interface Defects in 4H-SiC MOSFETs Studied by Electrically Detected Magnetic Resonance. <i>Materials Science Forum</i> , 2014 , 778-780, 414-417	0.4	2
33	Ultrahigh voltage SiC bipolar devices 2013 ,		2
32	1360 V, 5.0 m ² Double-Implanted MOSFETs Fabricated on 4H-SiC(000-1). <i>Materials Science Forum</i> , 2010 , 645-648, 987-990	0.4	2
31	Activation Treatment of Ion Implanted Dopants Using Hybrid Super RTA Equipment. <i>Materials Science Forum</i> , 2006 , 527-529, 803-806	0.4	2
30	4.3 m.OMEGA.cm ² , 1100 V normally-off IEMOSFET on SiC. <i>IEEJ Transactions on Industry Applications</i> , 2007 , 127, 267-272	0.2	2
29	Fabrication of 4H-SiC Double-Epitaxial MOSFETs. <i>Materials Science Forum</i> , 2004 , 457-460, 1421-1424	0.4	2
28	Evaluation of drain current decrease by AC gate bias stress in commercially available SiC MOSFETs 2017 ,		2
27	Edge Termination Design with Strong Process Robustness for 1.2 kV-class 4H-SiC Super Junction V-groove MOSFETs 2020 ,		2
26	Analysis of 1.2 kV SiC SWITCH-MOS after Short-circuit Stress 2020 ,		2
25	Sub-nm-Scale Depth Profiling of Nitrogen in NO- and N ₂ -Annealed SiO ₂ /4H-SiC(0001) Structures. <i>Materials Science Forum</i> , 2019 , 963, 226-229	0.4	2

24	Progress in High and Ultrahigh Voltage Silicon Carbide Device Technology 2018 ,		2
23	Crystal-orientation-dependent flatband voltage of non-polar GaN MOS interfaces investigated using trench sidewall capacitors. <i>Applied Physics Letters</i> , 2021 , 119, 071601	3.4	2
22	An experimental study on dynamic junction temperature estimation of SiC MOSFET with built-in SBD. <i>IEICE Electronics Express</i> , 2019 , 16, 20190392-20190392	0.5	1
21	High-Temperature Operating Characteristics of Inverter Using SBD-Integrated MOSFET. <i>Materials Science Forum</i> , 2020 , 1004, 1115-1122	0.4	1
20	Conduction Mechanism of Leakage Current in Thermal Oxide on 4H-SiC. <i>Materials Science Forum</i> , 2014 , 778-780, 579-582	0.4	1
19	Impact of Carbon Cap Annealing on Gate Oxide Reliability on 4H-SiC (000-1) C-Face. <i>Materials Science Forum</i> , 2009 , 615-617, 549-552	0.4	1
18	1.4kV Double-Implanted MOSFETs Fabricated on 4H-SiC(000-1). <i>Materials Science Forum</i> , 2011 , 679-680, 607-612	0.4	1
17	Activation of p-Type Dopants in 4H-SiC Using Hybrid Super-Rapid Thermal Annealing Equipment. <i>Japanese Journal of Applied Physics</i> , 2007 , 46, 5342-5344	1.4	1
16	Examination of compound formation at interface of tin-bismuth-silver solder and copper substrate by using electron probe micro analysis. <i>X-Ray Spectrometry</i> , 2002 , 31, 3-6	0.9	1
15	Influence of the Crystalline Quality of Epitaxial Layers on Inversion Channel Mobility in 4H-SiC MOSFETs. <i>Materials Science Forum</i> , 2002 , 389-393, 1053-1056	0.4	1
14	Carbonization of SIMOX Substrates for Fabrication of Single-crystal SiC-on-insulator. <i>Materials Science Forum</i> , 2000 , 338-342, 297-300	0.4	1
13	Electrical detection of TV2a-type silicon vacancy spin defect in 4H-SiC MOSFETs. <i>Applied Physics Letters</i> , 2022 , 120, 064001	3.4	1
12	Iron loss evaluation of magnetic materials excited by a SiC inverter with a Schottky barrier diode wall-integrated trench MOSFET. <i>AIP Advances</i> , 2020 , 10, 125129	1.5	1
11	A New JTE Technique for Vertical GaN Power Devices by Conductivity Control Using Boron Implantation into p-Type Layer 2021 ,		1
10	Accurate determination of threshold voltage shift during negative gate bias stress in 4H-SiC MOSFETs by fast on-the-fly method. <i>Japanese Journal of Applied Physics</i> , 2021 , 60, 060901	1.4	1
9	Free carrier density enhancement of 4H-SiC Si-face MOSFET by Ba diffusion process and NO passivation. <i>Japanese Journal of Applied Physics</i> , 2021 , 60, SBBD08	1.4	1
8	Investigation of Low Off-Angled 4H-SiC Epitaxial Wafers for Power Device Applications. <i>ECS Journal of Solid State Science and Technology</i> , 2017 , 6, P547-P552	2	0
7	Challenges of 4H-SiC MOSFETs on the C(000-1) Face toward the Achievement of Ultra Low On-Resistance. <i>Materials Science Forum</i> , 2008 , 600-603, 907-912	0.4	

- 6 A 4.3 μm^2 , 1100-V normally-off IEMOSFET on SiC. *Electronics and Communications in Japan*, **2008**, 91, 9-14 0.4
- 5 TCAD Optimisation of 4H-SiC Channel-Doped MOSFET with P-Polysilicon Gate. *Materials Science Forum*, **2002**, 389-393, 1085-1088 0.4
- 4 Channel Engineering of Buried-Channel 4H-SiC MOSFET Based on the Mobility Model of the Oxide/4H-SiC Interface. *Materials Science Forum*, **2002**, 389-393, 1081-1084 0.4
- 3 Influence of the Wet Re-Oxidation Procedure on Inversion Mobility of 4H-SiC MOSFETs. *Materials Science Forum*, **2002**, 389-393, 1049-1052 0.4
- 2 Effect of Ion Implantation-Induced Defects on Leakage Current Characteristics of IEMOS. *Materials Science Forum*, **2018**, 924, 353-356 0.4
- 1 Dipole scattering at the interface: The origin of low mobility observed in SiC MOSFETs. *Journal of Applied Physics*, **2022**, 131, 145701 2.5