

Ahmad E Islam

List of Publications by Year in descending order

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77
papers

7,457
citations

257450

24
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149698

56
g-index

78
all docs

78
docs citations

78
times ranked

10986
citing authors

#	ARTICLE	IF	CITATIONS
1	Epidermal Electronics. Science, 2011, 333, 838-843.	12.6	3,944
2	Strain engineering and epitaxial stabilization of halide perovskites. Nature, 2020, 577, 209-215.	27.8	417
3	Carbon Nanotubes and Related Nanomaterials: Critical Advances and Challenges for Synthesis toward Mainstream Commercial Applications. ACS Nano, 2018, 12, 11756-11784.	14.6	388
4	A Comparative Study of Different Physics-Based NBTI Models. IEEE Transactions on Electron Devices, 2013, 60, 901-916.	3.0	324
5	Recent Issues in Negative-Bias Temperature Instability: Initial Degradation, Field Dependence of Interface Trap Generation, Hole Trapping Effects, and Relaxation. IEEE Transactions on Electron Devices, 2007, 54, 2143-2154.	3.0	231
6	In^2 -Gallium oxide power electronics. APL Materials, 2022, 10, .	5.1	184
7	Using nanoscale thermocapillary flows to create arrays of purely semiconducting single-walled carbon nanotubes. Nature Nanotechnology, 2013, 8, 347-355.	31.5	167
8	Enhanced Conductivity, Adhesion, and Environmental Stability of Printed Graphene Inks with Nitrocellulose. Chemistry of Materials, 2017, 29, 2332-2340.	6.7	134
9	Isolation of NBTI Stress Generated Interface Trap and Hole-Trapping Components in PNO p-MOSFETs. IEEE Transactions on Electron Devices, 2009, 56, 236-242.	3.0	125
10	On the Physical Mechanism of NBTI in Silicon Oxynitride p-MOSFETs: Can Differences in Insulator Processing Conditions Resolve the Interface Trap Generation versus Hole Trapping Controversy?. , 2007, , .		108
11	Sources of Hysteresis in Carbon Nanotube Field-Effect Transistors and Their Elimination Via Methylsiloxane Encapsulants and Optimized Growth Procedures. Advanced Functional Materials, 2012, 22, 2276-2284.	14.9	103
12	A critical re-evaluation of the usefulness of R-D framework in predicting NBTI stress and recovery. , 2011, , .		79
13	Recent Progress in Obtaining Semiconducting Single-Walled Carbon Nanotubes for Transistor Applications. Advanced Materials, 2015, 27, 7908-7937.	21.0	67
14	Spectroscopic evaluation of charge-transfer doping and strain in graphene/ MoS_2 heterostructures. Physical Review B, 2019, 99, .	11.2	63
15	Insight on Structure of Water and Ice Next to Graphene Using Surface-Sensitive Spectroscopy. ACS Nano, 2017, 11, 4899-4906.	14.6	60
16	<i>In situ</i> thermal oxidation kinetics in few layer MoS_2 . 2D Materials, 2017, 4, 025058.	4.4	49
17	Biomarkers and Detection Platforms for Human Health and Performance Monitoring: A Review. Advanced Science, 2022, 9, e2104426.	11.2	48
18	Exploring the Capability of Multifrequency Charge Pumping in Resolving Location and Energy Levels of Traps Within Dielectric. IEEE Transactions on Electron Devices, 2008, 55, 3421-3431.	3.0	46

#	ARTICLE	IF	CITATIONS
19	A Raman spectroscopy signature for characterizing defective single-layer graphene: Defect-induced $I(D)/I(G)$ intensity ratio by theoretical analysis. Carbon, 2015, 90, 53-62.	10.3	45
20	Microwave purification of large-area horizontally aligned arrays of single-walled carbon nanotubes. Nature Communications, 2014, 5, 5332.	12.8	43
21	Gate Leakage vs. NBTI in Plasma Nitrided Oxides: Characterization, Physical Principles, and Optimization. , 2006, , .		41
22	Dynamics of cleaning, passivating and doping monolayer MoS ₂ by controlled laser irradiation. 2D Materials, 2019, 6, 045031.	4.4	40
23	Laser-Induced Nanoscale Thermocapillary Flow for Purification of Aligned Arrays of Single-Walled Carbon Nanotubes. ACS Nano, 2014, 8, 12641-12649.	14.6	39
24	Mobility degradation due to interface traps in plasma oxynitride PMOS devices. , 2008, , .		36
25	Efficient Closed-loop Maximization of Carbon Nanotube Growth Rate using Bayesian Optimization. Scientific Reports, 2020, 10, 9040.	3.3	36
26	Separation method of hole trapping and interface trap generation and their roles in NBTI reaction-diffusion model. , 2008, , .		32
27	Photo-thermal oxidation of single layer graphene. RSC Advances, 2016, 6, 42545-42553.	3.6	32
28	Electroluminescence in Aligned Arrays of Single-Wall Carbon Nanotubes with Asymmetric Contacts. ACS Nano, 2012, 6, 7981-7988.	14.6	31
29	Material Dependence of NBTI Physical Mechanism in Silicon Oxynitride (SiON) p-MOSFETs: A Comprehensive Study by Ultra-Fast On-The-Fly (UF-OTF) I&T Technique. , 2007, , .		28
30	Critical analysis of short-term negative bias temperature instability measurements: Explaining the effect of time-zero delay for on-the-fly measurements. Applied Physics Letters, 2007, 90, 083505.	3.3	27
31	Theory and Practice of On-the-fly and Ultra-fast V&T Measurements for NBTI Degradation: Challenges and Opportunities. , 2007, , .		25
32	Current Status of Reliability in Extended and Beyond CMOS Devices. IEEE Transactions on Device and Materials Reliability, 2016, 16, 647-666.	2.0	24
33	Quantitative Thermal Imaging of Single-Walled Carbon Nanotube Devices by Scanning Joule Expansion Microscopy. ACS Nano, 2012, 6, 10267-10275.	14.6	23
34	Toward high voltage radio frequency devices in $\text{InGa}_{2}\text{O}_3$. Applied Physics Letters, 2020, 117, .	3.3	23
35	Graphene-Based Electrolyte-Gated Field-Effect Transistors for Potentiometrically Sensing Neuropeptide Y in Physiologically Relevant Environments. ACS Applied Nano Materials, 2020, 3, 5088-5097.	5.0	23
36	<i>In Operando</i> Observation of Neuropeptide Capture and Release on Graphene Field-Effect Transistor Biosensors with Picomolar Sensitivity. ACS Applied Materials & Interfaces, 2019, 11, 13927-13934.	8.0	22

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37	Effect of variations in diameter and density on the statistics of aligned array carbon-nanotube field effect transistors. <i>Journal of Applied Physics</i> , 2012, 111, .	2.5	21
38	Engineering the Activity and Lifetime of Heterogeneous Catalysts for Carbon Nanotube Growth via Substrate Ion Beam Bombardment. <i>Nano Letters</i> , 2014, 14, 4997-5003.	9.1	19
39	Reaction-Diffusion Model. <i>Springer Series in Advanced Microelectronics</i> , 2016, , 181-207.	0.3	19
40	On the differences between ultra-fast NBTI measurements and Reaction-Diffusion theory. , 2009, , .		18
41	Accumulation gate capacitance of MOS devices with ultrathin high- κ gate dielectrics: modeling and characterization. <i>IEEE Transactions on Electron Devices</i> , 2006, 53, 1364-1372.	3.0	16
42	On the possibility of degradation-free field effect transistors. <i>Applied Physics Letters</i> , 2008, 92, .	3.3	16
43	Electrostatic Dimension of Aligned-Array Carbon Nanotube Field-Effect Transistors. <i>ACS Nano</i> , 2013, 7, 1299-1308.	14.6	15
44	Chiral angle-dependent defect evolution in CVD-grown single-walled carbon nanotubes. <i>Carbon</i> , 2015, 95, 287-291.	10.3	15
45	Defect engineering of graphene using electron-beam chemistry with radiolyzed water. <i>Carbon</i> , 2020, 166, 446-455.	10.3	15
46	Variability and Reliability of Single-Walled Carbon Nanotube Field Effect Transistors. <i>Electronics (Switzerland)</i> , 2013, 2, 332-367.	3.1	14
47	Direct current injection and thermocapillary flow for purification of aligned arrays of single-walled carbon nanotubes. <i>Journal of Applied Physics</i> , 2015, 117, .	2.5	14
48	Modeling Graphene with Nanoholes: Structure and Characterization by Raman Spectroscopy with Consideration for Electron Transport. <i>Journal of Physical Chemistry C</i> , 2016, 120, 5371-5383.	3.1	14
49	A Common Framework of NBTI Generation and Recovery in Plasma-Nitrided SiON p-MOSFETs. <i>IEEE Electron Device Letters</i> , 2009, 30, 978-980.	3.9	13
50	Physics and mechanisms of dielectric trap profiling by Multi-frequency Charge Pumping (MFCP) method. , 2009, , .		13
51	Essential aspects of Negative Bias Temperature Instability (NBTI). <i>ECS Transactions</i> , 2011, 35, 145-174.	0.5	13
52	Atomic level cleaning of poly-methyl-methacrylate residues from the graphene surface using radiolyzed water at high temperatures. <i>Applied Physics Letters</i> , 2017, 111, .	3.3	13
53	Analyzing the distribution of threshold voltage degradation in nanoscale transistors by using reaction-diffusion and percolation theory. <i>Journal of Computational Electronics</i> , 2011, 10, 341-351.	2.5	11
54	A self-consistent algorithm to extract interface trap states of MOS devices on alternative high-mobility substrates. <i>Solid-State Electronics</i> , 2011, 56, 141-147.	1.4	9

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55	Optimization of Gate Leakage and NBTI for Plasma-Nitrided Gate Oxides by Numerical and Analytical Models. IEEE Transactions on Electron Devices, 2008, 55, 1143-1152.	3.0	7
56	Characterization and modeling of NBTI stress, recovery, material dependence and AC degradation using R-D framework. , 2011, , .		7
57	Experimental identification of unique oxide defect regions by characteristic response of charge pumping. , 2011, , .		7
58	Understanding properties of engineered catalyst supports using contact angle measurements and X-Ray reflectivity. Nanoscale, 2016, 8, 2927-2936.	5.6	7
59	Water-assisted, electron-beam induced activation of carbon nanotube catalyst supports for mask-less, resist-free patterning. Carbon, 2018, 135, 270-277.	10.3	6
60	Magnesia and Magnesium Aluminate Catalyst Substrates for Carbon Nanotube Carpet Growth. ACS Applied Nano Materials, 2020, 3, 1830-1840.	5.0	6
61	Characterization and Estimation of Circuit Reliability Degradation under NBTI using On-Line IDDQ Measurement. Proceedings - Design Automation Conference, 2007, , .	0.0	6
62	Experimental Verification of Current Conduction Mechanism for a Lithium Niobate Based Memristor. ECS Journal of Solid State Science and Technology, 2020, 9, 103003.	1.8	6
63	A multi-probe correlated bulk defect characterization scheme for ultra-thin high- κ dielectric. , 2010, , .		5
64	Mobility enhancement due to charge trapping & defect generation: Physics of self-compensated BTI. , 2010, , .		5
65	On the electro-mechanical reliability of NEMFET as an analog/digital switch. , 2012, , .		5
66	A Theoretical Study of Negative Bias Temperature Instability in p-Type NEMFET. , 2010, , .		4
67	Material Dependence of Negative Bias Temperature Instability (NBTI) Stress and Recovery in SiON p-MOSFETs. ECS Transactions, 2009, 19, 243-263.	0.5	3
68	Defect-induced Raman spectroscopy in single-layer graphene with boron and nitrogen substitutional defects by theoretical investigation. Chemical Physics Letters, 2016, 663, 79-83.	2.6	3
69	Peptide-functionalized Single-walled Carbon Nanotube Field-effect Transistors for Monitoring Volatile Organic Compounds in Breath. , 2019, , .		2
70	Thermal instability of field emission from carbon nanotubes studied using multi-physics simulation by considering space charge effect. Proceedings of SPIE, 2015, , .	0.8	1
71	The Stability of Sapphire in the Presence of Water: an Environmental TEM Study. Microscopy and Microanalysis, 2017, 23, 964-965.	0.4	1
72	(Invited) Molecular Sensors for Human Performance Monitoring and Protection. ECS Meeting Abstracts, 2019, MA2019-01, 1370-1370.	0.0	1

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73	Self-compensating the effect of defect generation in advanced CMOS substrates. , 2009, , .		0
74	Engineering catalytic activity via ion beam bombardment of catalyst supports for vertically aligned carbon nanotube growth. , 2015, , .		0
75	Visualization of peptide-peptide interactions in FET biosensors with liquid-cell TEM. Microscopy and Microanalysis, 2017, 23, 890-891.	0.4	0
76	Electron-Beam Induced Activation of Catalyst Supports for CNT Growth. Microscopy and Microanalysis, 2017, 23, 1932-1933.	0.4	0
77	Bioinspired/Chemically Enhanced Biosensor for Detection of Gaseous Isopropyl Alcohol. , 2019, , .		0