

# Paul C McIntyre

## List of Publications by Year in descending order

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110  
papers

5,141  
citations

81900

39  
h-index

88630

70  
g-index

111  
all docs

111  
docs citations

111  
times ranked

6532  
citing authors

#	ARTICLE	IF	CITATIONS
1	Atomic layer-deposited tunnel oxide stabilizes silicon photoanodes for water oxidation. Nature Materials, 2011, 10, 539-544.	27.5	669
2	Coexistence of Grain Boundaries-Assisted Bipolar and Threshold Resistive Switching in Multilayer Hexagonal Boron Nitride. Advanced Functional Materials, 2017, 27, 1604811.	14.9	229
3	Design principles for maximizing photovoltage in metal-oxide-protected water-splitting photoanodes. Nature Materials, 2016, 15, 99-105.	27.5	217
4	Ge-Interface Engineering With Ozone Oxidation for Low Interface-State Density. IEEE Electron Device Letters, 2008, 29, 328-330.	3.9	172
5	Border traps in Al <sub>2</sub> O <sub>3</sub> /In <sub>0.53</sub> Ga <sub>0.47</sub> As (100) gate stacks and their passivation by hydrogen anneals. Applied Physics Letters, 2010, 96, .	3.3	172
6	Effects of catalyst material and atomic layer deposited TiO <sub>2</sub> oxide thickness on the water oxidation performance of metal-insulator-silicon anodes. Energy and Environmental Science, 2013, 6, 2487.	30.8	163
7	A Distributed Model for Border Traps in Al <sub>2</sub> O <sub>3</sub> -InGaAs MOS Devices. IEEE Electron Device Letters, 2011, 32, 485-487.	3.9	162
8	Origin and passivation of fixed charge in atomic layer deposited aluminum oxide gate insulators on chemically treated InGaAs substrates. Applied Physics Letters, 2010, 96, .	3.3	148
9	Investigation of Self-Assembled Monolayer Resists for Hafnium Dioxide Atomic Layer Deposition. Chemistry of Materials, 2005, 17, 536-544.	6.7	141
10	A Distributed Bulk-Oxide Trap Model for Al <sub>2</sub> O <sub>3</sub> /InGaAs MOS Devices. IEEE Transactions on Electron Devices, 2012, 59, 2100-2106.	3.0	134
11	Local epitaxial growth of ZrO <sub>2</sub> on Ge (100) substrates by atomic layer epitaxy. Applied Physics Letters, 2003, 83, 2647-2649.	3.3	126
12	Thermal Stability of Mixed Cation Metal Halide Perovskites in Air. ACS Applied Materials & Interfaces, 2018, 10, 5485-5491.	8.0	123
13	New method for determining flat-band voltage in high mobility semiconductors. Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics, 2013, 31, .	1.2	93
14	Semiconductor nanowires: to grow or not to grow?. Materials Today Nano, 2020, 9, 100058.	4.6	89
15	Surface Preparation and Deposited Gate Oxides for Gallium Nitride Based Metal Oxide Semiconductor Devices. Materials, 2012, 5, 1297-1335.	2.9	86
16	Atomically abrupt and unpinned Al <sub>2</sub> O <sub>3</sub> /In <sub>0.53</sub> Ga <sub>0.47</sub> As interfaces: Experiment and simulation. Journal of Applied Physics, 2009, 106, .	2.5	81
17	Electrical properties of thin film zirconia grown by ultraviolet ozone oxidation. Journal of Applied Physics, 2002, 91, 4521-4527.	2.5	79
18	Heteroepitaxial growth of chemically derived <i>ex situ</i> Ba <sub>2</sub> YCu <sub>3</sub> O <sub>7-x</sub> thin films. Journal of Materials Research, 1994, 9, 2219-2230.	2.6	78

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19	Interface-State Modeling of $\text{Al}_2\text{O}_3$ in InGaAs MOS From Depletion to Inversion. IEEE Transactions on Electron Devices, 2012, 59, 2383-2389.	3.0	70
20	Resistive Random Access Memory Cells with a Bilayer $\text{TiO}_2/\text{SiO}_x$ Insulating Stack for Simultaneous Filamentary and Distributed Resistive Switching. Advanced Functional Materials, 2017, 27, 1700384.	14.9	70
21	Size-dependent polymorphism in $\text{HfO}_2$ nanotubes and nanoscale thin films. Journal of Applied Physics, 2009, 106, .	2.5	68
22	Atomic Layer Deposited Corrosion Protection: A Path to Stable and Efficient Photoelectrochemical Cells. Journal of Physical Chemistry Letters, 2016, 7, 2867-2878.	4.6	67
23	Effect of oxygen stoichiometry on the electrical properties of zirconia gate dielectrics. Applied Physics Letters, 2001, 79, 3311-3313.	3.3	64
24	Interface-controlled layer exchange in metal-induced crystallization of germanium thin films. Applied Physics Letters, 2010, 97, .	3.3	64
25	Bilayer metal oxide gate insulators for scaled Ge-channel metal-oxide-semiconductor devices. Applied Physics Letters, 2010, 96, .	3.3	64
26	Growth and characterization of ultrathin zirconia dielectrics grown by ultraviolet ozone oxidation. Applied Physics Letters, 2001, 79, 2621-2623.	3.3	60
27	Pre-atomic layer deposition surface cleaning and chemical passivation of (100) $\text{In}_{0.2}\text{Ga}_{0.8}\text{As}$ and deposition of ultrathin $\text{Al}_2\text{O}_3$ gate insulators. Applied Physics Letters, 2008, 93, .	3.3	60
28	Practical challenges in the development of photoelectrochemical solar fuels production. Sustainable Energy and Fuels, 2020, 4, 985-995.	4.9	58
29	Ultrathin ALD- $\text{Al}_2\text{O}_3$ layers for Ge(001) gate stacks: Local composition evolution and dielectric properties. Journal of Applied Physics, 2011, 110, .	2.5	56
30	From Twinning to Pure Zinblendel Catalyst-Free InAs(Sb) Nanowires. Nano Letters, 2016, 16, 637-643.	9.1	56
31	Core-Shell Germanium/Germanium-Tin Nanowires Exhibiting Room-Temperature Direct- and Indirect-Gap Photoluminescence. Nano Letters, 2016, 16, 7521-7529.	9.1	54
32	$\text{O}^{18}$ tracer diffusion in $\text{Pb}(\text{Zr},\text{Ti})\text{O}_3$ thin films: A probe of local oxygen vacancy concentration. Journal of Applied Physics, 2005, 97, 023508.	2.5	51
33	Electrical properties of germanium/metal-oxide gate stacks with atomic layer deposition grown hafnium-dioxide and plasma-synthesized interface layers. Applied Physics Letters, 2007, 90, 112912.	3.3	50
34	Hafnium oxide/germanium oxynitride gate stacks on germanium: Capacitance scaling and interface state density. Applied Physics Letters, 2009, 94, .	3.3	50
35	Distinguishing Oxygen Vacancy Electromigration and Conductive Filament Formation in $\text{TiO}_2$ Resistance Switching Using Liquid Electrolyte Contacts. Nano Letters, 2017, 17, 4390-4399.	9.1	50
36	Equilibrium Point Defect and Electronic Carrier Distributions near Interfaces in Acceptor-Doped Strontium Titanate. Journal of the American Ceramic Society, 2000, 83, 1129-1136.	3.8	48

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37	Zirconia grown by ultraviolet ozone oxidation on germanium (100) substrates. Journal of Applied Physics, 2004, 96, 813-819.	2.5	40
38	Microstructural evolution of ZrO <sub>2</sub> /HfO <sub>2</sub> nanolaminate structures grown by atomic layer deposition. Journal of Materials Research, 2004, 19, 643-650.	2.6	40
39	Chemical states and electrical properties of a high-k metal oxide/silicon interface with oxygen-gettering titanium-metal-overlayer. Applied Physics Letters, 2006, 89, 1429-1432.	3.3	40
40	Arsenic decapping and pre-atomic layer deposition trimethylaluminum passivation of Al <sub>2</sub> O <sub>3</sub> /InGaAs(100) interfaces. Applied Physics Letters, 2013, 103, .	3.3	40
41	Titanium Oxide Crystallization and Interface Defect Passivation for High Performance Insulator-Protected Schottky Junction MIS Photoanodes. ACS Applied Materials & Interfaces, 2016, 8, 14596-14603.	8.0	39
42	Interface Trap Density Reduction for Al <sub>2</sub> O <sub>3</sub> /GaN (0001) Interfaces by Oxidizing Surface Preparation prior to Atomic Layer Deposition. ACS Applied Materials & Interfaces, 2015, 7, 12774-12780.	8.0	37
43	Oxidant prepulsing of Ge (100) prior to atomic layer deposition of Al <sub>2</sub> O <sub>3</sub> : <i>in situ</i> surface characterization. Applied Physics Letters, 2009, 95, .	3.3	36
44	Ultrathin zirconia/SiO <sub>2</sub> dielectric stacks grown by ultraviolet ozone oxidation. Applied Physics Letters, 2002, 80, 3793-3795.	3.3	34
45	Interface Engineering for Atomic Layer Deposited Alumina Gate Dielectric on SiGe Substrates. ACS Applied Materials & Interfaces, 2016, 8, 19110-19118.	8.0	34
46	Arsenic decapping and half cycle reactions during atomic layer deposition of Al <sub>2</sub> O <sub>3</sub> on In <sub>0.53</sub> Ga <sub>0.47</sub> As(001). Applied Physics Letters, 2010, 96, .	3.3	33
47	Comparative Study on Electrical and Microstructural Characteristics of ZrO <sub>2</sub> and HfO <sub>2</sub> Grown by Atomic Layer Deposition. Journal of Materials Research, 2005, 20, 3125-3132.	2.6	32
48	Ultralow Defect Density at Sub-0.5 nm HfO <sub>2</sub> /SiGe Interfaces via Selective Oxygen Scavenging. ACS Applied Materials & Interfaces, 2018, 10, 30794-30802.	8.0	31
49	High temperature phase transformation of tantalum nitride films deposited by plasma enhanced atomic layer deposition for gate electrode applications. Applied Physics Letters, 2007, 90, 102101.	3.3	30
50	Titania/alumina bilayer gate insulators for InGaAs metal-oxide-semiconductor devices. Applied Physics Letters, 2011, 99, 232902.	3.3	29
51	Engineering Interfacial Silicon Dioxide for Improved Metal/Insulator/Semiconductor Silicon Photoanode Water Splitting Performance. ACS Applied Materials & Interfaces, 2016, 8, 13140-13149.	8.0	28
52	Microstructural study of epitaxial platinum and Permalloy/platinum films grown on (0001) sapphire. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 2001, 81, 2073-2094.	0.6	27
53	Nucleation and growth kinetics during metal-induced layer exchange crystallization of Ge thin films at low temperatures. Journal of Applied Physics, 2012, 111, .	2.5	27
54	Mobile Ferroelastic Domain Walls in Nanocrystalline PZT Films: the Direct Piezoelectric Effect. Advanced Functional Materials, 2011, 21, 3104-3110.	14.9	26

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55	Film and interface layer properties of ultraviolet-ozone oxidized hafnia and zirconia gate dielectrics on silicon substrates. Applied Physics Letters, 2004, 85, 4699-4701.	3.3	25
56	>10% solar-to-hydrogen efficiency unassisted water splitting on ALD-protected silicon heterojunction solar cells. Sustainable Energy and Fuels, 2019, 3, 1490-1500.	4.9	25
57	Atomic Layer Deposited TiO <sub>2</sub> –IrO <sub>x</sub> Alloys Enable Corrosion Resistant Water Oxidation on Silicon at High Photovoltage. Chemistry of Materials, 2019, 31, 90-100.	6.7	22
58	Kinetics of germanium nanowire growth by the vapor-solid-solid mechanism with a Ni-based catalyst. APL Materials, 2013, 1, .	5.1	20
59	Effects of Titanium Layer Oxygen Scavenging on the High-k/InGaAs Interface. ACS Applied Materials & Interfaces, 2016, 8, 16979-16984.	8.0	20
60	Effects of surface oxide formation on germanium nanowire band-edge photoluminescence. Applied Physics Letters, 2013, 102, .	3.3	19
61	Direct-gap photoluminescence from germanium nanowires. Physical Review B, 2012, 86, .	3.2	18
62	Comparison of Bulk-Oxide Trap Models: Lumped Versus Distributed Circuit. IEEE Transactions on Electron Devices, 2013, 60, 3920-3924.	3.0	17
63	Engineering High-k/SiGe Interface with ALD Oxide for Selective GeO <sub>x</sub> Reduction. ACS Applied Materials & Interfaces, 2019, 11, 15111-15121.	8.0	17
64	Point defect equilibrium in strontium titanate thin films. Journal of Applied Physics, 2001, 89, 8074-8084.	2.5	16
65	Lead zirconate titanate ferroelectric thin film capacitors: Effects of surface treatments on ferroelectric properties. Applied Physics Letters, 2007, 91, .	3.3	15
66	Effects of chemical stability of platinum/lead zirconate titanate and iridium oxide/lead zirconate titanate interfaces on ferroelectric thin film switching reliability. Applied Physics Letters, 2007, 91, .	3.3	15
67	The influence of surface preparation on low temperature HfO <sub>2</sub> ALD on InGaAs (001) and (110) surfaces. Journal of Chemical Physics, 2015, 143, 164711.	3.0	15
68	Spontaneous, Defect-Free Kinking via Capillary Instability during Vapor–Liquid–Solid Nanowire Growth. Nano Letters, 2016, 16, 1713-1718.	9.1	15
69	Low temperature thermal ALD of a SiN <sub>x</sub> interfacial diffusion barrier and interface passivation layer on SixGe <sub>1-x</sub> (001) and SixGe <sub>1-x</sub> (110). Journal of Chemical Physics, 2017, 146, 052820.	3.0	15
70	The Role of Catalyst Adhesion in ALD-TiO <sub>2</sub> Protection of Water Splitting Silicon Anodes. ACS Applied Materials & Interfaces, 2018, 10, 37103-37109.	8.0	15
71	Atomic Layer Deposited TiO <sub>2</sub> –IrO <sub>x</sub> Alloy as a Hole Transport Material for Perovskite Solar Cells. Advanced Materials Interfaces, 2018, 5, 1800191.	3.7	15
72	Structural analysis of coexisting tetragonal and rhombohedral phases in polycrystalline Pb(Zr <sub>0.35</sub> Ti <sub>0.65</sub> )O <sub>3</sub> thin films. Journal of Materials Research, 2003, 18, 173-179.	2.6	14

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73	ALD-TiO <sub>2</sub> Preparation and Characterization for Metal-Insulator-Silicon Photoelectrochemical Applications. ECS Transactions, 2013, 58, 75-86.	0.5	14
74	Temperature Dependent Border Trap Response Produced by a Defective Interfacial Oxide Layer in Al <sub>2</sub> O <sub>3</sub> /InGaAs Gate Stacks. ACS Applied Materials & Interfaces, 2016, 8, 30601-30607.	8.0	14
75	Polarization recovery of fatigued Pb(Zr,Ti)O <sub>3</sub> thin films: Switching current studies. Journal of Applied Physics, 2003, 93, 1743-1747.	2.5	13
76	Point defect distributions and their electrical effects on (Ba,Sr)TiO <sub>3</sub> /Pt thin films. Journal of Applied Physics, 2003, 94, 1926-1933.	2.5	13
77	Oxidation-enhanced interdiffusion in Si <sub>1-x</sub> GexSi <sub>y</sub> Gey superlattices. Applied Physics Letters, 2007, 90, 082109.	3.3	11
78	High temperature electrical conduction in nanoscale hafnia films under varying oxygen partial pressure. Applied Physics Letters, 2010, 97, 082102.	3.3	10
79	Strain relaxation mechanisms in compressively strained thin SiGe-on-insulator films grown by selective Si oxidation. Journal of Applied Physics, 2011, 109, 014324.	2.5	10
80	Inelastic electron tunneling study of crystallization effects and defect energies in hafnium oxide gate dielectrics. Applied Physics Letters, 2011, 98, .	3.3	9
81	Physical and electrical properties of plasma nitrided germanium oxynitride. Journal of Vacuum Science & Technology B, 2006, 24, 2449.	1.3	7
82	Design and growth of III-V nanowire solar cell arrays on low cost substrates. , 2010, , .		7
83	Surface Defect Passivation of Silicon Micropillars. Advanced Materials Interfaces, 2018, 5, 1800865.	3.7	7
84	Reversible Decay of Oxygen Evolution Activity of Iridium Catalysts. Journal of the Electrochemical Society, 2019, 166, H712-H717.	2.9	7
85	Oxygen Permeability of Ferroelectric Thin Film Top Electrodes and Its Effect on Detectable Fatigue Cycling-Induced Oxygen Isotope Motion. Journal of Materials Research, 2004, 19, 1265-1272.	2.6	6
86	Ge on Si by novel heteroepitaxy for high efficiency near infrared photodetection. , 2006, , .		6
87	III-V MOSFETs: Scaling laws, scaling limits, fabrication processes. , 2010, , .		6
88	Understanding the Mechanism of Electronic Defect Suppression Enabled by Nonidealities in Atomic Layer Deposition. Journal of the American Chemical Society, 2020, 142, 134-145.	13.7	6
89	Interfacing Low-Temperature Atomic Layer Deposited TiO <sub>2</sub> Electron Transport Layers with Metal Electrodes. Advanced Materials Interfaces, 2020, 7, 1902054.	3.7	6
90	Bending and precipitate formation mechanisms in epitaxial Ge-core/GeSn-shell nanowires. Nanoscale, 2021, 13, 17547-17555.	5.6	6

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91	Effects of H <sub>2</sub> High-pressure Annealing on HfO <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> /In <sub>0.53</sub> Ga <sub>0.47</sub> As Capacitors: Chemical Composition and Electrical Characteristics. Scientific Reports, 2017, 7, 9769.	3.3	5
92	CeO <sub>2</sub> Doping of Hf <sub>0.5</sub> Zr <sub>0.5</sub> O <sub>2</sub> Thin Films for High Endurance Ferroelectric Memories. Advanced Electronic Materials, 2022, 8, .	5.1	5
93	Enhancement mode In <sub>0.53</sub> Ga <sub>0.47</sub> As MOSFET with self-aligned epitaxial source/drain regrowth. , 2009, , .		4
94	Characterization of the photocurrents generated by the laser of atomic force microscopes. Review of Scientific Instruments, 2016, 87, 083703.	1.3	4
95	Resistive Switching: Coexistence of Grain-Boundaries-Assisted Bipolar and Threshold Resistive Switching in Multilayer Hexagonal Boron Nitride (Adv. Funct. Mater. 10/2017). Advanced Functional Materials, 2017, 27, .	14.9	4
96	Link between Gas Phase Reaction Chemistry and the Electronic Conductivity of Atomic Layer Deposited Titanium Oxide Thin Films. Journal of Physical Chemistry Letters, 2021, 12, 3625-3632.	4.6	4
97	Y-Doping Effects on the Dielectric Behavior of RF-Sputtered BST Thin Films. Materials Research Society Symposia Proceedings, 2004, 833, 51.	0.1	3
98	Silicon Photoanodes for Solar-Driven Oxidation of Brine: A Nanoscale, Photo-Active Analog of the Dimensionally-Stable Anode. Journal of the Electrochemical Society, 2018, 165, H1072-H1079.	2.9	3
99	Bias temperature stress induced hydrogen depassivation from Al <sub>2</sub> O <sub>3</sub> /InGaAs interface defects. Journal of Applied Physics, 2018, 123, 025708.	2.5	2
100	Effect of IrO <sub>2</sub> Spatial Distribution on the Stability and Charge Distribution of Ti <sub>1-x</sub> Ir <sub>x</sub> O <sub>2</sub> Alloys. Chemistry of Materials, 2019, 31, 8742-8751.	6.7	2
101	Area Selective Atomic Layer Deposition by Soft Lithography. Materials Research Society Symposia Proceedings, 2006, 917, 1.	0.1	1
102	Effects of Nitrogen Reactive Species on Germanium Plasma Nitridation Processes. Materials Research Society Symposia Proceedings, 2006, 917, 1.	0.1	1
103	Growth of germanium crystals from electrodeposited gold in local crucibles. Applied Physics Letters, 2009, 94, .	3.3	1
104	Ge Nanowires: Sn Catalysts and Ge/Ge <sub>1-x</sub> Sn <sub>x</sub> Core-Shell Structures. Microscopy and Microanalysis, 2017, 23, 1730-1731.	0.4	1
105	Influences of Plasma Processed Interface Layers on Germanium MOS Devices with ALD Grown HfO <sub>2</sub> . Materials Research Society Symposia Proceedings, 2007, 996, 1.	0.1	0
106	(Paper CH011) effect of strain, microstructure, and interfaces on tunability and relaxor-like dielectric behavior in barium strontium titanate thin-films. , 2008, , .		0
107	0.37 mS/μm In <sub>0.53</sub> Ga <sub>0.47</sub> As MOSFET with 5 nm channel and self-aligned epitaxial raised source/drain. , 2009, , .		0
108	Interface engineering for high performance and stable MIS photosynthesis cells. , 2017, , .		0

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109	Using Liquid Electrolytes in Dielectric Reliability Studies. , 2018, , .		0
110	Strain and Sn distribution in Ge/Ge <sub>1-x</sub> Sn <sub>x</sub> Core-Shell Nanowires. Microscopy and Microanalysis, 2019, 25, 2146-2147.	0.4	0