

Charles Ahn

List of Publications by Year in descending order

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114
papers

7,952
citations

66315

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48277

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114
all docs

114
docs citations

114
times ranked

8571
citing authors

#	ARTICLE	IF	CITATIONS
1	Ferroelectricity at the Nanoscale: Local Polarization in Oxide Thin Films and Heterostructures. Science, 2004, 303, 488-491.	6.0	837
2	Magnetoelectric Coupling Effects in Multiferroic Complex Oxide Composite Structures. Advanced Materials, 2010, 22, 2900-2918.	11.1	792
3	Electric field effect in correlated oxide systems. Nature, 2003, 424, 1015-1018.	13.7	629
4	Electrostatic modification of novel materials. Reviews of Modern Physics, 2006, 78, 1185-1212.	16.4	465
5	Ferroelectricity in thin perovskite films. Applied Physics Letters, 1999, 75, 856-858.	1.5	449
6	Magnetoelectric Effects in Complex Oxides with Competing Ground States. Advanced Materials, 2009, 21, 3470-3474.	11.1	395
7	Origin of the Magnetoelectric Coupling Effect in $\text{Pb}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_3$	2.9	314
8	Ferroelectric Field Effect Transistors for Memory Applications. Advanced Materials, 2010, 22, 2957-2961.	11.1	257
9	Electrostatic Modulation of Superconductivity in Ultrathin $\text{GdBa}_2\text{Cu}_3\text{O}_{7-x}$ Films. Science, 1999, 284, 1152-1155.	6.0	254
10	Crystalline Oxides on Silicon. Advanced Materials, 2010, 22, 2919-2938.	11.1	203
11	Orbital Engineering in Symmetry-Breaking Polar Heterostructures. Physical Review Letters, 2015, 114, 026801.	2.9	135
12	Control and imaging of ferroelectric domains over large areas with nanometer resolution in atomically smooth epitaxial $\text{Pb}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_3$ thin films. Applied Physics Letters, 1998, 72, 1454-1456.	1.5	133
13	Ferroelectric-field-induced tuning of magnetism in the colossal magnetoresistive oxide $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$. Physical Review B, 2003, 68, .	1.1	121
14	Interface-induced nonswitchable domains in ferroelectric thin films. Nature Communications, 2014, 5, 4693.	5.8	120
15	Unusual resistance hysteresis in n-layer graphene field effect transistors fabricated on ferroelectric $\text{Pb}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_3$. Applied Physics Letters, 2010, 97, .	1.5	115
16	Examining the screening limit of field effect devices via the metal-insulator transition. Applied Physics Letters, 2005, 86, 142501.	1.5	110
17	Ferroelectric Field Effect in Epitaxial Thin Film Oxide $\text{SrCuO}_2/\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3$ Heterostructures. Science, 1995, 269, 373-376.	6.0	106
18	Tuning the Structure of Nickelates to Achieve Two-Dimensional Electron Conduction. Advanced Materials, 2014, 26, 1935-1940.	11.1	99

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19	LaTiO ₃ /KTaO ₃ interfaces: A new two-dimensional electron gas system. APL Materials, 2015, 3, .	2.2	94
20	Ferromagnetism and structure of epitaxial Cr-doped anataseTiO ₂ thin films. Physical Review B, 2006, 73, .	1.1	77
21	Synthesis of SnTe Nanoplates with {100} and {111} Surfaces. Nano Letters, 2014, 14, 4183-4188.	4.5	75
22	Temperature dependence of the magnetoelectric effect in Pb(Zr _{0.2} Ti _{0.8})O ₃ /La _{0.8} Sr _{0.2} MnO ₃ multiferroic heterostructures. Applied Physics Letters, 2010, 97, .	1.5	74
23	Giant planar Hall effect in colossal magnetoresistive La _{0.84} Sr _{0.16} MnO ₃ thin films. Applied Physics Letters, 2004, 84, 2593-2595.	1.5	71
24	Alkaline earth stannates: The next silicon?. APL Materials, 2015, 3, 062510.	2.2	71
25	Magnetic anisotropy modulation of magnetite in Fe ₃ O ₄ /BaTiO ₃ (100) epitaxial structures. Applied Physics Letters, 2009, 94, 022504.	1.5	70
26	A new frontier for superconductivity. Nature Physics, 2014, 10, 892-895.	6.5	68
27	Role of Strontium in Oxide Epitaxy on Silicon (001). Physical Review Letters, 2008, 101, 105503.	2.9	64
28	Reversible Modulation of Orbital Occupations via an Interface-Induced Polar State in Metallic Manganites. Nano Letters, 2014, 14, 4965-4970.	4.5	61
29	Device performance of ferroelectric/correlated oxide heterostructures for non-volatile memory applications. Nanotechnology, 2011, 22, 254014.	1.3	50
30	Origin of 90° domain wall pinning in Pb(Zr _{0.2} Ti _{0.8})O ₃ heteroepitaxial thin films. Applied Physics Letters, 2011, 99, 102902.	1.5	49
31	Epitaxial MgO as an alternative gate dielectric for SiC transistor applications. Applied Physics Letters, 2008, 92, .	1.5	47
32	Integration of Self-Assembled Epitaxial BiFeO ₃ â€“CoFe ₂ O ₄ Multiferroic Nanocomposites on Silicon Substrates. Advanced Functional Materials, 2014, 24, 5889-5896.	7.8	47
33	Planar Hall-effect magnetic random access memory. Journal of Applied Physics, 2006, 99, 08R701.	1.1	46
34	Scanning SQUID susceptometry of a paramagnetic superconductor. Physical Review B, 2012, 85, .	1.1	46
35	Solar hydrogen production using epitaxial SrTiO ₃ on a GaAs photovoltaic. Energy and Environmental Science, 2017, 10, 377-382.	15.6	46
36	Stabilization of Competing Ferroelectric Phases of HfO_2 Epitaxial Strain. Physical Review Letters, 2020, 125, 257603.	2.9	46

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37	Atomic Structure of the Epitaxial BaO/Si Overlayer on TiO_2/Si Heterostructure. <i>Physical Review Letters</i> , 2009, 102, 076102. (stretchy="false")	2.9	45
38	Control of magnetism in $\text{Pb}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_3/\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ multiferroic heterostructures (invited). <i>Journal of Applied Physics</i> , 2011, 109, .	1.1	45
39	Effect of Surface Termination on the Electronic Properties of LaNiO_3 . <i>Physical Review Applied</i> , 2014, 2, .	1.5	45
40	Effect of electric field doping on the anisotropic magnetoresistance in doped manganites. <i>Physical Review B</i> , 2006, 74, .	1.1	44
41	Magnetoresistance tensor of $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$. <i>Physical Review B</i> , 2009, 79, .	1.1	42
42	Picoscale materials engineering. <i>Nature Reviews Materials</i> , 2017, 2, .	23.3	42
43	Designing and controlling the properties of transition metal oxide quantum materials. <i>Nature Materials</i> , 2021, 20, 1462-1468.	13.3	42
44	Phase diagram of compressively strained nickelate thin films. <i>APL Materials</i> , 2013, 1, .	2.2	41
45	Role of double TiO_2 layers at the interface of $\text{FeSe}/\text{SrTiO}_3$ superconductors. <i>Physical Review Letters</i> , 2016, 116, 077201.	1.1	40
46	Self-assembled multiferroic epitaxial $\text{BiFeO}_3/\text{CoFe}_2\text{O}_4$ nanocomposite thin films grown by RF magnetron sputtering. <i>Journal of Materials Chemistry C</i> , 2018, 6, 5552-5561.	2.7	37
47	Electrostatic Tuning of the Hole Density in $\text{NdBa}_2\text{Cu}_3\text{O}_{7-x}$ Films and its Effect on the Hall Response. <i>Physical Review Letters</i> , 2002, 88, 067002.	2.9	36
48	Research Update: Orbital polarization in LaNiO_3 -based heterostructures. <i>APL Materials</i> , 2015, 3, 062303.	2.2	34
49	Surface phase, morphology, and charge distribution transitions on vacuum and ambient annealed $\text{SrTiO}_3(100)$. <i>Physical Review B</i> , 2016, 93, 041407.	1.1	34
50	Electric field tuned crossover from classical to weakly localized quantum transport in electron doped SrTiO_3 . <i>Physical Review B</i> , 2010, 81, .	1.1	31
51	Field-dependent anisotropic magnetoresistance and planar Hall effect in epitaxial magnetite thin films. <i>Physical Review B</i> , 2011, 84, .	1.1	30
52	A high density two-dimensional electron gas in an oxide heterostructure on $\text{Si}(001)$. <i>APL Materials</i> , 2014, 2, 116109.	2.2	29
53	Growth and Novel Applications of Epitaxial Oxide Thin Films. , 2007, , 219-304.		28
54	Orbital Engineering in Nickelate Heterostructures Driven by Anisotropic Oxygen Hybridization rather than Orbital Energy Levels. <i>Physical Review Letters</i> , 2016, 117, 147401.	2.9	27

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55	High-Resolution Crystal Truncation Rod Scattering: Application to Ultrathin Layers and Buried Interfaces. <i>Advanced Materials Interfaces</i> , 2020, 7, 1901772.	1.9	27
56	Single Atomic Layer Ferroelectric on Silicon. <i>Nano Letters</i> , 2018, 18, 241-246.	4.5	26
57	Intrinsic interfacial phenomena in manganite heterostructures. <i>Journal of Physics Condensed Matter</i> , 2015, 27, 123001.	0.7	25
58	Enhanced critical temperature in epitaxial ferroelectric Pb(Zr _{0.2} Ti _{0.8})O ₃ thin films on silicon. <i>Applied Physics Letters</i> , 2011, 98, 012903.	1.5	24
59	Magnetic and electronic structure of ultrathin La _{1-x} O ₃ films at half doping. <i>Physical Review B</i> , 2014, 90, .	1.1	24
60	A narrow amide I vibrational band observed by sum frequency generation spectroscopy reveals highly ordered structures of a biofilm protein at the air/water interface. <i>Chemical Communications</i> , 2016, 52, 2956-2959.	2.2	24
61	Picoscale structural insight into superconductivity of monolayer FeSe/SrTiO ₃ . <i>Science Advances</i> , 2020, 6, eaay4517.	4.7	24
62	Growth and characterization of PZT/LSMO multiferroic heterostructures. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2010, 28, C5A6-C5A10.	0.6	23
63	Hysteretic electrical transport in BaTiO ₃ /Ba _{1-x} Sr _x TiO ₃ /Ge heterostructures. <i>Applied Physics Letters</i> , 2014, 104, .	1.5	23
64	A Three Component Self-Assembled Epitaxial Nanocomposite Thin Film. <i>Advanced Functional Materials</i> , 2015, 25, 3091-3100.	7.8	20
65	Engineered Unique Elastic Modes at a BaTiO ₃ /Tj _{2.9} ETQq1 1 0.784314 r gBT /Overlock 10 Tf 50 322 Td		
66	Planar Hall effect in epitaxial thin films of magnetite. <i>Journal of Applied Physics</i> , 2007, 101, 09J507.	1.1	17
67	Controlling Mobility in Perovskite Oxides by Ferroelectric Modulation of Atomic-Scale Interface Structure. <i>Nano Letters</i> , 2018, 18, 573-578.	4.5	17
68	Tuning spin excitations in magnetic films by confinement. <i>Nature Materials</i> , 2021, 20, 188-193.	13.3	17
69	Transport at the Epitaxial Interface between Germanium and Functional Oxides. <i>Advanced Materials Interfaces</i> , 2015, 2, 1500193.	1.9	16
70	Ferroelectric stability of BaTiO ₃ in a crystalline oxide on semiconductor structure. <i>Physica Status Solidi (B): Basic Research</i> , 2004, 241, 2287-2290.	0.7	15
71	Anisotropic magnetoresistance and planar Hall effect in epitaxial films of La _{0.7} Ca _{0.3} MnO ₃ . <i>Journal of Applied Physics</i> , 2009, 106, 023916.	1.1	15
72	Electrostatic modulation of anisotropic magnetotransport in Ar-irradiated SrTiO ₃	1.1	15

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73	Epitaxial ferroelectric interfacial devices. Applied Physics Reviews, 2021, 8, .	5.5	15
74	Electrically coupling complex oxides to semiconductors: A route to novel material functionalities. Journal of Materials Research, 2017, 32, 249-259.	1.2	14
75	Electron-beam-induced-current and active secondary-electron voltage-contrast with aberration-corrected electron probes. Ultramicroscopy, 2017, 176, 80-85.	0.8	14
76	Strong Orbital Polarization in a Cobaltate-Titanate Oxide Heterostructure. Physical Review Letters, 2019, 123, 117201.	2.9	14
77	Single-crystalline epitaxial TiO film: A metal and superconductor, similar to Ti metal. Science Advances, 2021, 7, .	4.7	14
78	Experimental verification of orbital engineering at the atomic scale: Charge transfer and symmetry breaking in nickelate heterostructures. Physical Review B, 2017, 95, .	1.1	12
79	Control of hidden ground-state order in NdNiO_3 superlattices. Physical Review Materials, 2017, 1, .	0.9	12
80	Oxide heterostructures for high density 2D electron gases on GaAs. Journal of Applied Physics, 2018, 123, .	1.1	11
81	High-order replica bands in monolayer FeSe/SrTiO3 revealed by polarization-dependent photoemission spectroscopy. Nature Communications, 2021, 12, 4573.	5.8	11
82	Epitaxial multiferroic hexagonal manganite thin films grown on ZnO. Physica Status Solidi (B): Basic Research, 2006, 243, 2085-2088.	0.7	9
83	Coupling of bias-induced crystallographic shear planes with charged domain walls in ferroelectric oxide thin films. Physical Review B, 2016, 94, .	1.1	9
84	Revealing surface-state transport in ultrathin topological crystalline insulator SnTe films. APL Materials, 2019, 7, .	2.2	9
85	Angular dependence of the Hall effect of $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$.	1.1	8
86	Out of plane anisotropic magnetoresistance and planar Hall effect in epitaxial film of $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$. Journal of Applied Physics, 2014, 115, 053709.	1.1	8
87	Structural characterization of the $\text{LaInO}_3/\text{BaSnO}_3$ interface via synchrotron scattering. APL Materials, 2019, 7, .	2.2	8
88	Surface phase transitions and related surface defect structures upon reduction of epitaxial $\text{WO}_3(100)$ thin films: A scanning tunneling microscopy study. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2004, 22, 1682-1689.	0.9	7
89	Valence electron energy-loss spectroscopy of ultrathin SrTiO_3 films grown on silicon (100) single crystal. Applied Physics Letters, 2010, 96, .	1.5	7
90	Electronic structure study of LaCoIn_5 and its comparison with CeCoIn_5 . Physical Review B, 2019, 100, .	1.1	7

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91	A comprehensive ARPES study on the type-II Dirac semimetal candidate $\text{Ir}_{1-x}\text{Pt}_x\text{Te}_2$. <i>APL Materials</i> , 2020, 8, .	2.2	7
92	Two-dimensional electron gas oxide remote doping of $\text{Si}(001)$. <i>Physical Review Materials</i> , 2018, 2, .	0.9	7
93	Epitaxial Piezoelectric $\text{Pb}(\text{Tl}, \text{Bi})_2\text{Te}$ Thin Films on Silicon for Energy Harvesting De. <i>Smart Materials Research</i> , 2012, 2012, 1-7.	0.5	6
94	Length Scale and Dimensionality of Defects in Epitaxial SnTe Topological Crystalline Insulator Films. <i>Advanced Materials Interfaces</i> , 2017, 4, 1601011.	1.9	6
95	Surface-induced thickness limit of conducting La-doped SrTiO_3 thin films. <i>Applied Physics Letters</i> , 2019, 115, .	1.5	6
96	Thickness dependence of the resistivity tensor in epitaxial magnetite thin films. <i>Journal of Applied Physics</i> , 2013, 114, 043701.	1.1	5
97	Publisher's note. <i>Ultramicroscopy</i> , 2017, 177, 14-19.	0.8	5
98	Low temperature growth of epitaxial ferroelectric BaTiO_3 . <i>APL Materials</i> , 2021, 9, 041104.	2.2	5
99	Domain dynamics in epitaxial $\text{Pb}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_3$ films studied by piezoelectric force microscopy. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2010, 28, C5A20-C5A23.	0.6	4
100	Weak antilocalization in topological crystalline insulator SnTe films deposited using amorphous seeding on SrTiO_3 . <i>APL Materials</i> , 2021, 9, .	2.2	4
101	Resonant x-ray scattering method for measuring cation stoichiometry in BaSnO_3 thin films. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2022, 40, .	0.9	4
102	Characterization of the magnetic anisotropy in thin films of $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ using the planar Hall effect. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , 2004, 1, 3336-3338.	0.8	3
103	Morphology of epitaxial $\text{SrTiO}_3/\text{Si}(001)$ determined using three-dimensional diffraction profile analysis. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2010, 28, C5B1-C5B4.	0.6	3
104	A Material Framework for Beyond-CMOS Devices. <i>IEEE Journal on Exploratory Solid-State Computational Devices and Circuits</i> , 2015, 1, 19-27.	1.1	3
105	Integrating 2D electron gas oxide heterostructures on silicon using rare-earth titanates. <i>MRS Advances</i> , 2016, 1, 287-292.	0.5	3
106	Electronic properties of epitaxial $\text{La}_{1-x}\text{Sr}_x\text{RhO}_3$ thin films. <i>Physical Review B</i> , 2021, 103, .	1.1	3
107	Suppression of the spectral weight of topological surface states on the nanoscale via local symmetry breaking. <i>Physical Review Materials</i> , 2018, 2, .	0.9	3
108	Electrostatic control of magnetism in all-oxide multiferroic heterostructures. <i>Proceedings of SPIE</i> , 2010, , .	0.8	2

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109	Piezoelectric force microscopy of crystalline oxide-semiconductor heterostructures. Applied Physics Letters, 2012, 101, 102902.	1.5	2
110	Field tuning of domain-wall type and chirality in SrRuO_3 . Physical Review B, 2017, 95, .	1.1	1
111	Crystalline Insulators: Length Scale and Dimensionality of Defects in Epitaxial SnTe Topological Crystalline Insulator Films (Adv. Mater. Interfaces 2/2017). Advanced Materials Interfaces, 2017, 4, .	1.9	1
112	Identifying crystal structures and chemical reactions at the interface of stanene on Bi ₂ Te ₃ . Journal of Applied Physics, 2020, 128, .	1.1	1
113	Electrically Coupling Multifunctional Oxides to Semiconductors: A Route to Novel Material Functionalities. MRS Advances, 2016, 1, 255-263.	0.5	0
114	Novel Functionality in Switchable Polar Materials. Advanced Electronic Materials, 0, , 2200146.	2.6	0