

Arthur P Baddorf

List of Publications by Year in descending order

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111
papers

7,457
citations

53794

45
h-index

53230

85
g-index

115
all docs

115
docs citations

115
times ranked

8513
citing authors

#	ARTICLE	IF	CITATIONS
1	Electric modulation of conduction in multiferroic Ca-doped BiFeO ₃ films. Nature Materials, 2009, 8, 485-493.	27.5	481
2	Polarization Control of Electron Tunneling into Ferroelectric Surfaces. Science, 2009, 324, 1421-1425.	12.6	441
3	The band excitation method in scanning probe microscopy for rapid mapping of energy dissipation on the nanoscale. Nanotechnology, 2007, 18, 435503.	2.6	413
4	Switching spectroscopy piezoresponse force microscopy of ferroelectric materials. Applied Physics Letters, 2006, 88, 062908.	3.3	371
5	Domain Wall Conductivity in La-Doped BiFeO_3 . Physical Review Letters, 2010, 105, 197603.	7.8	357
6	Deterministic control of ferroelastic switching in multiferroic materials. Nature Nanotechnology, 2009, 4, 868-875.	31.5	331
7	A physical catalyst for the electrolysis of nitrogen to ammonia. Science Advances, 2018, 4, e1700336.	10.3	264
8	Direct imaging of the spatial and energy distribution of nucleation centres in ferroelectric materials. Nature Materials, 2008, 7, 209-215.	27.5	250
9	Vector Piezoresponse Force Microscopy. Microscopy and Microanalysis, 2006, 12, 206-220.	0.4	228
10	Dynamic Conductivity of Ferroelectric Domain Walls in BiFeO ₃ . Nano Letters, 2011, 11, 1906-1912.	9.1	223
11	Evolutionary selection growth of two-dimensional materials on polycrystalline substrates. Nature Materials, 2018, 17, 318-322.	27.5	204
12	Tunable Metallic Conductance in Ferroelectric Nanodomains. Nano Letters, 2012, 12, 209-213.	9.1	153
13	Nanoscale Switching Characteristics of Nearly Tetragonal BiFeO ₃ Thin Films. Nano Letters, 2010, 10, 2555-2561.	9.1	149
14	Domain Wall Conduction and Polarization-Mediated Transport in Ferroelectrics. Advanced Functional Materials, 2013, 23, 2592-2616.	14.9	113
15	The Role of Electrochemical Phenomena in Scanning Probe Microscopy of Ferroelectric Thin Films. ACS Nano, 2011, 5, 5683-5691.	14.6	109
16	Dynamic behaviour in piezoresponse force microscopy. Nanotechnology, 2006, 17, 1615-1628.	2.6	108
17	Tracking ion intercalation into layered Ti ₃ C ₂ MXene films across length scales. Energy and Environmental Science, 2020, 13, 2549-2558.	30.8	100
18	Band Excitation in Scanning Probe Microscopy: Recognition and Functional Imaging. Annual Review of Physical Chemistry, 2014, 65, 519-536.	10.8	97

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19	Quantification of surface displacements and electromechanical phenomena via dynamic atomic force microscopy. <i>Nanotechnology</i> , 2016, 27, 425707.	2.6	92
20	Enhanced surface anharmonicity observed in vibrations on Cu(110). <i>Physical Review Letters</i> , 1991, 66, 2770-2773.	7.8	82
21	Reduced Coercive Field in BiFeO ₃ Thin Films Through Domain Engineering. <i>Advanced Materials</i> , 2011, 23, 669-672.	21.0	82
22	High Resolution Electromechanical Imaging of Ferroelectric Materials in a Liquid Environment by Piezoresponse Force Microscopy. <i>Physical Review Letters</i> , 2006, 96, 237602.	7.8	80
23	Formation, Migration, and Reactivity of Au-CO Complexes on Gold Surfaces. <i>Journal of the American Chemical Society</i> , 2016, 138, 1518-1526.	13.7	74
24	Growth and Characterization of Rh and Pd Nanoparticles on Oxidized and Reduced CeOx(111) Thin Films by Scanning Tunneling Microscopy. <i>Journal of Physical Chemistry C</i> , 2008, 112, 9336-9345.	3.1	73
25	Atomistic Screening Mechanism of Ferroelectric Surfaces: An In Situ Study of the Polar Phase in Ultrathin BaTiO ₃ Films Exposed to H ₂ O. <i>Nano Letters</i> , 2009, 9, 3720-3725.	9.1	73
26	Deep Data Analysis of Conductive Phenomena on Complex Oxide Interfaces: Physics from Data Mining. <i>ACS Nano</i> , 2014, 8, 6449-6457.	14.6	73
27	Spatial resolution, information limit, and contrast transfer in piezoresponse force microscopy. <i>Nanotechnology</i> , 2006, 17, 3400-3411.	2.6	71
28	Ultrathin limit and dead-layer effects in local polarization switching of BiFeO ₃ . <i>Physical Review B</i> , 2012, 85, .	3.2	71
29	Spatially resolved one-dimensional boundary states in graphene-hexagonal boron nitride planar heterostructures. <i>Nature Communications</i> , 2014, 5, 5403.	12.8	71
30	Dimensionality Controlled Octahedral Symmetry-Mismatch and Functionalities in Epitaxial LaCoO ₃ /SrTiO ₃ Heterostructures. <i>Nano Letters</i> , 2015, 15, 4677-4684.	9.1	71
31	Bioelectromechanical imaging by scanning probe microscopy: Galvani's experiment at the nanoscale. <i>Ultramicroscopy</i> , 2006, 106, 334-340.	1.9	66
32	Electronic Properties of Isosymmetric Phase Boundaries in Highly Strained Ca-Doped BiFeO ₃ . <i>Advanced Materials</i> , 2014, 26, 4376-4380.	21.0	66
33	Atomic-scale observation of structural and electronic orders in the layered compound $\hat{\Gamma}$ -RuCl ₃ . <i>Nature Communications</i> , 2016, 7, 13774.	12.8	66
34	Unraveling Deterministic Mesoscopic Polarization Switching Mechanisms: Spatially Resolved Studies of a Tilt Grain Boundary in Bismuth Ferrite. <i>Advanced Functional Materials</i> , 2009, 19, 2053-2063.	14.9	65
35	Real space imaging of the microscopic origins of the ultrahigh dielectric constant in polycrystalline CaCu ₃ Ti ₄ O ₁₂ . <i>Applied Physics Letters</i> , 2005, 86, 102902.	3.3	64
36	Electronic transport imaging in a multiwire SnO ₂ chemical field-effect transistor device. <i>Journal of Applied Physics</i> , 2005, 98, 044503.	2.5	62

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37	Nanoelectromechanics of polarization switching in piezoresponse force microscopy. Journal of Applied Physics, 2005, 97, 074305.	2.5	62
38	Defect-Mediated Polarization Switching in Ferroelectrics and Related Materials: From Mesoscopic Mechanisms to Atomistic Control. Advanced Materials, 2010, 22, 314-322.	21.0	62
39	Surface stability of epitaxial SrRuO ₃ films. Surface Science, 2005, 581, 118-132.	1.9	58
40	Spatially resolved mapping of ferroelectric switching behavior in self-assembled multiferroic nanostructures: strain, size, and interface effects. Nanotechnology, 2007, 18, 405701.	2.6	51
41	Electromechanical imaging of biomaterials by scanning probe microscopy. Journal of Structural Biology, 2006, 153, 151-159.	2.8	50
42	Electron Transport at the Nanometer-Scale Spatially Revealed by Four-Probe Scanning Tunneling Microscopy. Advanced Functional Materials, 2013, 23, 2509-2524.	14.9	50
43	Local bias-induced phase transitions. Materials Today, 2008, 11, 16-27.	14.2	49
44	Intrinsic Nucleation Mechanism and Disorder Effects in Polarization Switching on Ferroelectric Surfaces. Physical Review Letters, 2009, 102, 017601.	7.8	49
45	Periodic lattice distortion accompanying the charge-density-wave transition for Sn/Ge(111). Physical Review B, 1999, 60, 2860-2863.	3.2	47
46	Controlling Polarization Dynamics in a Liquid Environment: From Localized to Macroscopic Switching in Ferroelectrics. Physical Review Letters, 2007, 98, 247603.	7.8	46
47	Oxygen-Induced Surface Reconstruction of SrRuO ₃ and Its Effect on the BaTiO ₃ Interface. ACS Nano, 2010, 4, 4190-4196.	14.6	44
48	Defect-induced asymmetry of local hysteresis loops on BiFeO ₃ surfaces. Journal of Materials Science, 2009, 44, 5095-5101.	3.7	38
49	The reaction of carbon monoxide with palladium supported on cerium oxide thin films. Surface Science, 2007, 601, 3215-3223.	1.9	36
50	Simultaneous elastic and electromechanical imaging by scanning probe microscopy: Theory and applications to ferroelectric and biological materials. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2005, 23, 2102.	1.6	35
51	Big data in reciprocal space: Sliding fast Fourier transforms for determining periodicity. Applied Physics Letters, 2015, 106, .	3.3	35
52	Atomic intercalation to measure adhesion of graphene on graphite. Nature Communications, 2016, 7, 13263.	12.8	35
53	Effect of Doping on Surface Reactivity and Conduction Mechanism in Samarium-Doped Ceria Thin Films. ACS Nano, 2014, 8, 12494-12501.	14.6	34
54	Big-Data Reflection High Energy Electron Diffraction Analysis for Understanding Epitaxial Film Growth Processes. ACS Nano, 2014, 8, 10899-10908.	14.6	34

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55	Detection of the Spin-Chemical Potential in Topological Insulators Using Spin-Polarized Four-Probe STM. <i>Physical Review Letters</i> , 2017, 119, 137202.	7.8	34
56	Layer-by-layer and pseudo-two-dimensional growth modes for heteroepitaxial BaTiO ₃ films by exploiting kinetic limitations. <i>Applied Physics Letters</i> , 2007, 91, 202901.	3.3	30
57	Polar distortion in ultrathin BaTiO ₃ films studied by in situ LEED. <i>Physical Review B</i> , 2008, 77, .	3.2	29
58	Correlating Electronic Transport to Atomic Structures in Self-Assembled Quantum Wires. <i>Nano Letters</i> , 2012, 12, 938-942.	9.1	28
59	Chemically induced Jahn-Teller ordering on manganite surfaces. <i>Nature Communications</i> , 2014, 5, 4528.	12.8	28
60	Surface Control of Epitaxial Manganite Films via Oxygen Pressure. <i>ACS Nano</i> , 2015, 9, 4316-4327.	14.6	27
61	High frequency piezoresponse force microscopy in the 1-10MHz regime. <i>Applied Physics Letters</i> , 2007, 91, .	3.3	26
62	Structure of pseudomorphic and reconstructed thin Cu films on Ru(0001). <i>Physical Review B</i> , 2000, 62, 10436-10444.	3.2	25
63	Fabrication, dynamics, and electrical properties of insulated scanning probe microscopy probes for electrical and electromechanical imaging in liquids. <i>Applied Physics Letters</i> , 2007, 91, .	3.3	25
64	Electronic Control over Attachment and Self-Assembly of Alkyne Groups on Gold. <i>ACS Nano</i> , 2012, 6, 9267-9275.	14.6	25
65	Oxidization stability of atomically precise graphene nanoribbons. <i>Physical Review Materials</i> , 2018, 2, .	2.4	25
66	Periodic lattice distortion accompanying the (3 \times 3) charge-density-wave phase of Sn/Ge(111). <i>Physical Review B</i> , 1998, 57, 4579-4583.	3.2	24
67	Scaling and disorder analysis of local μ curves from ferroelectric thin films of lead zirconate titanate. <i>Nanotechnology</i> , 2011, 22, 254031.	2.6	24
68	Learning from Imperfections: Predicting Structure and Thermodynamics from Atomic Imaging of Fluctuations. <i>ACS Nano</i> , 2019, 13, 718-727.	14.6	24
69	Scanning probe microscopy imaging of frequency dependent electrical transport through carbon nanotube networks in polymers. <i>Nanotechnology</i> , 2004, 15, 907-912.	2.6	23
70	Probing Local and Global Ferroelectric Phase Stability and Polarization Switching in Ordered Macroporous PZT. <i>Advanced Functional Materials</i> , 2011, 21, 941-947.	14.9	23
71	Thermal expansion at a metal surface: A study of Mg(0001) and Be(101 $\bar{1}$ 0). <i>Physical Review B</i> , 2002, 66, .	3.2	22
72	Quantitative Analysis of Electronic Properties of Carbon Nanotubes by Scanning Probe Microscopy: From Atomic to Mesoscopic Length Scales. <i>Physical Review Letters</i> , 2004, 93, 246801.	7.8	22

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73	Ferroelectric domain scaling and switching in ultrathin BiFeO ₃ films deposited on vicinal substrates. <i>New Journal of Physics</i> , 2012, 14, 053040.	2.9	21
74	Versailles Project on Advanced Materials and Standards interlaboratory study on intensity calibration for x-ray photoelectron spectroscopy instruments using low-density polyethylene. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2020, 38, 063208.	2.1	21
75	Surface anharmonicity. <i>Journal of Electron Spectroscopy and Related Phenomena</i> , 1990, 54-55, 541-550.	1.7	20
76	Adsorption, desorption, and dissociation of benzene on TiO ₂ (110) and Pd ⁺ •TiO ₂ (110): Experimental characterization and first-principles calculations. <i>Physical Review B</i> , 2006, 74, .	3.2	20
77	Detection of percolating paths in polyhedral segregated network composites using electrostatic force microscopy and conductive atomic force microscopy. <i>Applied Physics Letters</i> , 2009, 95, .	3.3	20
78	Toward Quantitative Electrochemical Measurements on the Nanoscale by Scanning Probe Microscopy: Environmental and Current Spreading Effects. <i>ACS Nano</i> , 2013, 7, 8175-8182.	14.6	19
79	Oxygen Control of Atomic Structure and Physical Properties of SrRuO ₃ Surfaces. <i>ACS Nano</i> , 2013, 7, 4403-4413.	14.6	19
80	Recent Advances in Electromechanical Imaging on the Nanometer Scale: Polarization Dynamics in Ferroelectrics, Biopolymers, and Liquid Imaging. <i>Japanese Journal of Applied Physics</i> , 2007, 46, 5674-5685.	1.5	18
81	Piezoelectric response of nanoscale PbTiO ₃ in composite PbTiO ₃ /CoFe ₂ O ₄ epitaxial films. <i>Applied Physics Letters</i> , 2008, 93, 074101.	3.3	18
82	Local crystallography analysis for atomically resolved scanning tunneling microscopy images. <i>Nanotechnology</i> , 2013, 24, 415707.	2.6	18
83	Structure and growth of strained Cu films on Ru(0001). <i>Surface Science</i> , 2000, 447, L141-L146.	1.9	17
84	Nonlinear transport imaging by scanning impedance microscopy. <i>Applied Physics Letters</i> , 2004, 85, 4240-4242.	3.3	17
85	Atomic-scale electrochemistry on the surface of a manganite by scanning tunneling microscopy. <i>Applied Physics Letters</i> , 2015, 106, .	3.3	17
86	Decoupling indirect topographic cross-talk in band excitation piezoresponse force microscopy imaging and spectroscopy. <i>Applied Physics Letters</i> , 2016, 108, .	3.3	17
87	Electronic Stability of Magnetic Fe/Co Superlattices with Monatomic Layer Alternation. <i>Physical Review Letters</i> , 2003, 91, 226106.	7.8	16
88	Interplay between intercalated oxygen superstructures and monolayer h-BN on Cu(100). <i>Physical Review B</i> , 2016, 94, .	3.2	16
89	Relaxation and thermal expansion of Ru() between 300 and 1870 K and the influence of hydrogen. <i>Surface Science</i> , 2002, 498, 74-82.	1.9	14
90	Surface stability of epitaxial SrRuO ₃ thin films in vacuum. <i>Journal of Materials Research</i> , 2004, 19, 3447-3450.	2.6	14

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91	Growth Mode Transition in Complex Oxide Heteroepitaxy: Atomically Resolved Studies. <i>Crystal Growth and Design</i> , 2016, 16, 2708-2716.	3.0	13
92	Observation of ferroelectricity in a confined crystallite using electron-backscattered diffraction and piezoresponse force microscopy. <i>Applied Physics Letters</i> , 2005, 87, 172903.	3.3	12
93	Water-mediated electrochemical nano-writing on thin ceria films. <i>Nanotechnology</i> , 2014, 25, 075701.	2.6	12
94	Detection of Indentation Induced FE-to-AFE Phase Transformation in Lead Zirconate Titanate. <i>Journal of the American Ceramic Society</i> , 2006, 89, 3557-3559.	3.8	10
95	In Situ Observations and Tuning of Physical and Chemical Phenomena on the Surfaces of Strongly Correlated Oxides. <i>Advanced Functional Materials</i> , 2013, 23, 2477-2489.	14.9	10
96	Direct measurement of periodic electric forces in liquids. <i>Journal of Applied Physics</i> , 2008, 103, 014306.	2.5	9
97	Doping characterization of InAs ^δ -GaAs quantum dot heterostructure by cross-sectional scanning capacitance microscopy. <i>Applied Physics Letters</i> , 2008, 92, .	3.3	9
98	Novel Iron-based ternary amorphous oxide semiconductor with very high transparency, electronic conductivity and mobility. <i>Scientific Reports</i> , 2015, 5, 18157.	3.3	9
99	The Ehrlich-Schwoebel barrier on an oxide surface: a combined Monte-Carlo and <i>in situ</i> scanning tunneling microscopy approach. <i>Nanotechnology</i> , 2015, 26, 455705.	2.6	8
100	Anharmonicity on the Cu(110)-(2 $\sqrt{3}$ -1)O surface. <i>Journal of Electron Spectroscopy and Related Phenomena</i> , 1993, 64-65, 691-696.	1.7	7
101	Nanoscale strain distribution at the Ag/Ru(0001) interface. <i>Physical Review B</i> , 2003, 67, .	3.2	7
102	Electronic transport through <i>in situ</i> grown ultrathin BaTiO ₃ films. <i>Applied Physics Letters</i> , 2009, 95, 032903.	3.3	7
103	Work function measurements of clean and modified carbon nanospikes. <i>Carbon</i> , 2020, 168, 302-307.	10.3	7
104	Surface reconstructions and modified surface states in $L_{1-x}A_xC_{1-x}Mn_x$	2.4	7
105	Effect of silver doping on the surface of La _{5/8} Ca _{3/8} MnO ₃ epitaxial films. <i>Applied Physics Letters</i> , 2014, 105, .	3.3	6
106	Exotic Long-Range Surface Reconstruction on La _{0.7} Sr _{0.3} MnO ₃ Thin Films. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 9166-9173.	8.0	6
107	Hydrogen adsorption on Mo _{1-x} Re _x (110) (x=0 \leq 0.25) surfaces. <i>Surface Science</i> , 1998, 410, 237-249.	1.9	5
108	Surface dynamics of the layered ruthenate Ca _{1.9} Sr _{0.1} RuO ₄ . <i>Physica Status Solidi (B): Basic Research</i> , 2004, 241, 2363-2366.	1.5	5

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109	Supramolecular polymerization of a prebiotic nucleoside provides insights into the creation of sequence-controlled polymers. <i>Scientific Reports</i> , 2016, 6, 18891.	3.3	5
110	Theory-assisted determination of nano-rippling and impurities in atomic resolution images of angle-mismatched bilayer graphene. <i>2D Materials</i> , 2018, 5, 041008.	4.4	5
111	Piezoelectric force microscopy of crystalline oxide-semiconductor heterostructures. <i>Applied Physics Letters</i> , 2012, 101, 102902.	3.3	2