

Sergei V Kalinin

List of Publications by Citations

Source: <https://exaly.com/author-pdf/11730806/sergei-v-kalinin-publications-by-citations.pdf>

Version: 2024-04-26

This document has been generated based on the publications and citations recorded by exaly.com. For the latest version of this publication list, visit the link given above.

The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

263
papers

13,566
citations

65
h-index

107
g-index

270
ext. papers

14,849
ext. citations

9.1
avg. IF

6.56
L-index

#	Paper	IF	Citations
263	Imaging mechanism of piezoresponse force microscopy of ferroelectric surfaces. <i>Physical Review B</i> , 2002 , 65,	3.3	409
262	Polarization control of electron tunneling into ferroelectric surfaces. <i>Science</i> , 2009 , 324, 1421-5	33.3	398
261	The band excitation method in scanning probe microscopy for rapid mapping of energy dissipation on the nanoscale. <i>Nanotechnology</i> , 2007 , 18, 435503	3.4	383
260	Dual-frequency resonance-tracking atomic force microscopy. <i>Nanotechnology</i> , 2007 , 18, 475504	3.4	365
259	Local potential and polarization screening on ferroelectric surfaces. <i>Physical Review B</i> , 2001 , 63,	3.3	321
258	Enhanced electric conductivity at ferroelectric vortex cores in BiFeO ₃ . <i>Nature Physics</i> , 2012 , 8, 81-88	16.2	271
257	Electromechanical Imaging and Spectroscopy of Ferroelectric and Piezoelectric Materials: State of the Art and Prospects for the Future. <i>Journal of the American Ceramic Society</i> , 2009 , 92, 1629-1647	3.8	268
256	Probing oxygen vacancy concentration and homogeneity in solid-oxide fuel-cell cathode materials on the subunit-cell level. <i>Nature Materials</i> , 2012 , 11, 888-94	27	243
255	Direct imaging of the spatial and energy distribution of nucleation centres in ferroelectric materials. <i>Nature Materials</i> , 2008 , 7, 209-15	27	235
254	Measuring oxygen reduction/evolution reactions on the nanoscale. <i>Nature Chemistry</i> , 2011 , 3, 707-13	17.6	220
253	Big-deep-smart data in imaging for guiding materials design. <i>Nature Materials</i> , 2015 , 14, 973-80	27	219
252	Nanoelectromechanics of piezoresponse force microscopy. <i>Physical Review B</i> , 2004 , 70,	3.3	206
251	Dynamic conductivity of ferroelectric domain walls in BiFeO ₃ . <i>Nano Letters</i> , 2011 , 11, 1906-12	11.5	204
250	Vector piezoresponse force microscopy. <i>Microscopy and Microanalysis</i> , 2006 , 12, 206-20	0.5	204
249	Materials science. Functional ion defects in transition metal oxides. <i>Science</i> , 2013 , 341, 858-9	33.3	199
248	Ferroelectric or non-ferroelectric: Why so many materials exhibit ferroelectricity on the nanoscale. <i>Applied Physics Reviews</i> , 2017 , 4, 021302	17.3	195
247	Direct observation of ferroelectric field effect and vacancy-controlled screening at the BiFeO ₃ /La _x Sr _{1-x} MnO ₃ interface. <i>Nature Materials</i> , 2014 , 13, 1019-25	27	195

246	Differentiating Ferroelectric and Nonferroelectric Electromechanical Effects with Scanning Probe Microscopy. <i>ACS Nano</i> , 2015 , 9, 6484-92	16.7	191
245	Switching of ferroelectric polarization in epitaxial BaTiO ₃ films on silicon without a conducting bottom electrode. <i>Nature Nanotechnology</i> , 2013 , 8, 748-54	28.7	184
244	Nanoscale Electromechanics of Ferroelectric and Biological Systems: A New Dimension in Scanning Probe Microscopy. <i>Annual Review of Materials Research</i> , 2007 , 37, 189-238	12.8	179
243	Quantitative mapping of switching behavior in piezoresponse force microscopy. <i>Review of Scientific Instruments</i> , 2006 , 77, 073702	1.7	178
242	Large resistive switching in ferroelectric BiFeO ₃ nano-island based switchable diodes. <i>Advanced Materials</i> , 2013 , 25, 2339-43	24	163
241	A decade of piezoresponse force microscopy: progress, challenges, and opportunities. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2006 , 53, 2226-52	3.2	147
240	Band excitation in scanning probe microscopy: sines of change. <i>Journal Physics D: Applied Physics</i> , 2011 , 44, 464006	3	141
239	Nanoscale switching characteristics of nearly tetragonal BiFeO ₃ thin films. <i>Nano Letters</i> , 2010 , 10, 2555-61.5	61.5	140
238	Mapping octahedral tilts and polarization across a domain wall in BiFeO ₃ from Z-contrast scanning transmission electron microscopy image atomic column shape analysis. <i>ACS Nano</i> , 2010 , 4, 6071-9	16.7	135
237	Tunable metallic conductance in ferroelectric nanodomains. <i>Nano Letters</i> , 2012 , 12, 209-13	11.5	131
236	Domain polarity and temperature induced potential inversion on the BaTiO ₃ (100) surface. <i>Journal of Applied Physics</i> , 2002 , 91, 3816-3823	2.5	120
235	Chemical nature of ferroelastic twin domains in CH ₃ NH ₂ PbI ₃ perovskite. <i>Nature Materials</i> , 2018 , 17, 1013-1019	1019	114
234	Exploring local electrostatic effects with scanning probe microscopy: implications for piezoresponse force microscopy and triboelectricity. <i>ACS Nano</i> , 2014 , 8, 10229-36	16.7	110
233	Tunneling electroresistance induced by interfacial phase transitions in ultrathin oxide heterostructures. <i>Nano Letters</i> , 2013 , 13, 5837-43	11.5	106
232	Thermotropic phase boundaries in classic ferroelectrics. <i>Nature Communications</i> , 2014 , 5, 3172	17.4	105
231	Resonance enhancement in piezoresponse force microscopy: Mapping electromechanical activity, contact stiffness, and Q factor. <i>Applied Physics Letters</i> , 2006 , 89, 022906	3.4	105
230	Surface Domain Structures and Mesoscopic Phase Transition in Relaxor Ferroelectrics. <i>Advanced Functional Materials</i> , 2011 , 21, 1977-1987	15.6	102
229	Dynamic behaviour in piezoresponse force microscopy. <i>Nanotechnology</i> , 2006 , 17, 1615-28	3.4	102

228	The role of electrochemical phenomena in scanning probe microscopy of ferroelectric thin films. <i>ACS Nano</i> , 2011 , 5, 5683-91	16.7	101
227	Domain Wall Conduction and Polarization-Mediated Transport in Ferroelectrics. <i>Advanced Functional Materials</i> , 2013 , 23, 2592-2616	15.6	96
226	Nanoscale Ferroelectricity in Crystalline β -Glycine. <i>Advanced Functional Materials</i> , 2012 , 22, 2996-3003	15.6	94
225	Interplay of octahedral tilts and polar order in BiFeO ₃ films. <i>Advanced Materials</i> , 2013 , 25, 2497-504	24	94
224	Principal component and spatial correlation analysis of spectroscopic-imaging data in scanning probe microscopy. <i>Nanotechnology</i> , 2009 , 20, 085714	3.4	94
223	Temperature dependence of polarization and charge dynamics on the BaTiO ₃ (100) surface by scanning probe microscopy. <i>Applied Physics Letters</i> , 2001 , 78, 1116-1118	3.4	94
222	Surface-screening mechanisms in ferroelectric thin films and their effect on polarization dynamics and domain structures. <i>Reports on Progress in Physics</i> , 2018 , 81, 036502	14.4	93
221	Nanoscale Elastic Changes in 2D Ti ₃ C ₂ T _x (MXene) Pseudocapacitive Electrodes. <i>Advanced Energy Materials</i> , 2016 , 6, 1502290	21.8	92
220	Decoupling electrochemical reaction and diffusion processes in ionically-conductive solids on the nanometer scale. <i>ACS Nano</i> , 2010 , 4, 7349-57	16.7	90
219	Resolution-function theory in piezoresponse force microscopy: Wall imaging, spectroscopy, and lateral resolution. <i>Physical Review B</i> , 2007 , 75,	3.3	89
218	Electromechanical imaging of biological systems with sub-10nm resolution. <i>Applied Physics Letters</i> , 2005 , 87, 053901	3.4	89
217	Domain wall conduction in multiaxial ferroelectrics. <i>Physical Review B</i> , 2012 , 85,	3.3	85
216	Beyond condensed matter physics on the nanoscale: the role of ionic and electrochemical phenomena in the physical functionalities of oxide materials. <i>ACS Nano</i> , 2012 , 6, 10423-37	16.7	83
215	Quantification of surface displacements and electromechanical phenomena via dynamic atomic force microscopy. <i>Nanotechnology</i> , 2016 , 27, 425707	3.4	80
214	Big, Deep, and Smart Data in Scanning Probe Microscopy. <i>ACS Nano</i> , 2016 , 10, 9068-9086	16.7	79
213	Electrochemical strain microscopy: Probing ionic and electrochemical phenomena in solids at the nanometer level. <i>MRS Bulletin</i> , 2012 , 37, 651-658	3.2	77
212	Direct Observation of Capacitor Switching Using Planar Electrodes. <i>Advanced Functional Materials</i> , 2010 , 20, 3466-3475	15.6	76
211	Directing Matter: Toward Atomic-Scale 3D Nanofabrication. <i>ACS Nano</i> , 2016 , 10, 5600-18	16.7	76

210	High resolution electromechanical imaging of ferroelectric materials in a liquid environment by piezoresponse force microscopy. <i>Physical Review Letters</i> , 2006 , 96, 237602	7.4	74
209	Mixed electrochemical/ferroelectric states in nanoscale ferroelectrics. <i>Nature Physics</i> , 2017 , 13, 812-818	16.2	72
208	Ionically-mediated electromechanical hysteresis in transition metal oxides. <i>ACS Nano</i> , 2012 , 6, 7026-33	16.7	72
207	Atomically resolved mapping of polarization and electric fields across ferroelectric/oxide interfaces by Z-contrast imaging. <i>Advanced Materials</i> , 2011 , 23, 2474-9	24	72
206	Rapid multidimensional data acquisition in scanning probe microscopy applied to local polarization dynamics and voltage dependent contact mechanics. <i>Applied Physics Letters</i> , 2008 , 93, 112903	3.4	71
205	Electromechanical detection in scanning probe microscopy: Tip models and materials contrast. <i>Journal of Applied Physics</i> , 2007 , 102, 014109	2.5	71
204	In Situ Observation of Oxygen Vacancy Dynamics and Ordering in the Epitaxial LaCoO System. <i>ACS Nano</i> , 2017 , 11, 6942-6949	16.7	70
203	Imaging physical phenomena with local probes: From electrons to photons. <i>Reviews of Modern Physics</i> , 2012 , 84, 1343-1381	40.5	70
202	Nanoscale control of phase variants in strain-engineered BiFeO ₃ . <i>Nano Letters</i> , 2011 , 11, 3346-54	11.5	70
201	Piezoresponse force spectroscopy of ferroelectric-semiconductor materials. <i>Journal of Applied Physics</i> , 2007 , 102, 114108	2.5	69
200	A review of molecular beam epitaxy of ferroelectric BaTiO films on Si, Ge and GaAs substrates and their applications. <i>Science and Technology of Advanced Materials</i> , 2015 , 16, 036005	7.1	67
199	Materials contrast in piezoresponse force microscopy. <i>Applied Physics Letters</i> , 2006 , 88, 232904	3.4	66
198	Nonlinear phenomena in multiferroic nanocapacitors: joule heating and electromechanical effects. <i>ACS Nano</i> , 2011 , 5, 9104-12	16.7	65
197	Mapping irreversible electrochemical processes on the nanoscale: ionic phenomena in li ion conductive glass ceramics. <i>Nano Letters</i> , 2011 , 11, 4161-7	11.5	65
196	Carrier density modulation in a germanium heterostructure by ferroelectric switching. <i>Nature Communications</i> , 2015 , 6, 6067	17.4	64
195	Deep data analysis of conductive phenomena on complex oxide interfaces: physics from data mining. <i>ACS Nano</i> , 2014 , 8, 6449-57	16.7	63
194	Conductivity of twin-domain-wall/surface junctions in ferroelastics: Interplay of deformation potential, octahedral rotations, improper ferroelectricity, and flexoelectric coupling. <i>Physical Review B</i> , 2012 , 86,	3.3	63
193	Mesoscopic metal-insulator transition at ferroelastic domain walls in VO ₂ . <i>ACS Nano</i> , 2010 , 4, 4412-9	16.7	63

192	Microwave a.c. conductivity of domain walls in ferroelectric thin films. <i>Nature Communications</i> , 2016 , 7, 11630	17.4	63
191	Probing surface and bulk electrochemical processes on the LaAlO ₃ -SrTiO ₃ interface. <i>ACS Nano</i> , 2012 , 6, 3841-52	16.7	62
190	Bioelectromechanical imaging by scanning probe microscopy: Galvani's experiment at the nanoscale. <i>Ultramicroscopy</i> , 2006 , 106, 334-40	3.1	62
189	Direct mapping of ionic transport in a Si anode on the nanoscale: time domain electrochemical strain spectroscopy study. <i>ACS Nano</i> , 2011 , 5, 9682-95	16.7	59
188	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	15.6	58
187	Ferroelectric domain wall pinning at a bicrystal grain boundary in bismuth ferrite. <i>Applied Physics Letters</i> , 2008 , 93, 142901	3.4	57
186	Thermodynamics of nanodomain formation and breakdown in scanning probe microscopy: Landau-Ginzburg-Devonshire approach. <i>Physical Review B</i> , 2009 , 80,	3.3	56
185	Anisotropic conductivity of uncharged domain walls in BiFeO ₃ . <i>Physical Review B</i> , 2012 , 86,	3.3	53
184	Defect-mediated polarization switching in ferroelectrics and related materials: from mesoscopic mechanisms to atomistic control. <i>Advanced Materials</i> , 2010 , 22, 314-22	24	52
183	Imaging mechanism of piezoresponse force microscopy in capacitor structures. <i>Applied Physics Letters</i> , 2008 , 92, 152906	3.4	52
182	Identification of phases, symmetries and defects through local crystallography. <i>Nature Communications</i> , 2015 , 6, 7801	17.4	51
181	Watching domains grow: In-situ studies of polarization switching by combined scanning probe and scanning transmission electron microscopy. <i>Journal of Applied Physics</i> , 2011 , 110, 052014	2.5	51
180	Local detection of activation energy for ionic transport in lithium cobalt oxide. <i>Nano Letters</i> , 2012 , 12, 3399-403	11.5	50
179	Interface dipole between two metallic oxides caused by localized oxygen vacancies. <i>Physical Review B</i> , 2012 , 86,	3.3	50
178	Surface effect on domain wall width in ferroelectrics. <i>Journal of Applied Physics</i> , 2009 , 106, 084102	2.5	50
177	Switching spectroscopy piezoresponse force microscopy of polycrystalline capacitor structures. <i>Applied Physics Letters</i> , 2009 , 94, 042906	3.4	50
176	Probing local ionic dynamics in functional oxides at the nanoscale. <i>Nano Letters</i> , 2013 , 13, 3455-62	11.5	49
175	Current and surface charge modified hysteresis loops in ferroelectric thin films. <i>Journal of Applied Physics</i> , 2015 , 118, 072013	2.5	49

174	Mechanical control of electroresistive switching. <i>Nano Letters</i> , 2013 , 13, 4068-74	11.5	48
173	First-order reversal curve probing of spatially resolved polarization switching dynamics in ferroelectric nanocapacitors. <i>ACS Nano</i> , 2012 , 6, 491-500	16.7	47
172	Intrinsic nucleation mechanism and disorder effects in polarization switching on ferroelectric surfaces. <i>Physical Review Letters</i> , 2009 , 102, 017601	7.4	46
171	Local bias-induced phase transitions. <i>Materials Today</i> , 2008 , 11, 16-27	21.8	46
170	The piezoresponse force microscopy of surface layers and thin films: Effective response and resolution function. <i>Journal of Applied Physics</i> , 2007 , 102, 074105	2.5	46
169	Towards nanoscale electrical measurements in liquid by advanced KPFM techniques: a review. <i>Reports on Progress in Physics</i> , 2018 , 81, 086101	14.4	45
168	Direct probing of charge injection and polarization-controlled ionic mobility on ferroelectric LiNbO(3) surfaces. <i>Advanced Materials</i> , 2014 , 26, 958-63	24	44
167	Structural phase transitions and electronic phenomena at 180-degree domain walls in rhombohedral BaTiO3. <i>Physical Review B</i> , 2013 , 87,	3.3	43
166	Oxygen-induced surface reconstruction of SrRuO3 and its effect on the BaTiO3 interface. <i>ACS Nano</i> , 2010 , 4, 4190-6	16.7	43
165	Dual harmonic Kelvin probe force microscopy at the graphene-liquid interface. <i>Applied Physics Letters</i> , 2014 , 104, 133103	3.4	42
164	Ferroionic states in ferroelectric thin films. <i>Physical Review B</i> , 2017 , 95,	3.3	41
163	Electromechanics on the Nanometer Scale: Emerging Phenomena, Devices, and Applications. <i>MRS Bulletin</i> , 2009 , 34, 634-642	3.2	41
162	Electrical modulation of the local conduction at oxide tubular interfaces. <i>ACS Nano</i> , 2013 , 7, 8627-33	16.7	39
161	Nanoscale polarization profile across a 180°ferroelectric domain wall extracted by quantitative piezoelectric force microscopy. <i>Journal of Applied Physics</i> , 2008 , 104, 074110	2.5	39
160	Extrinsic size effect in piezoresponse force microscopy of thin films. <i>Physical Review B</i> , 2007 , 76,	3.3	39
159	Size-effect in layered ferroelectric CuInP2S6. <i>Applied Physics Letters</i> , 2016 , 109, 172901	3.4	39
158	Space- and time-resolved mapping of ionic dynamic and electroresistive phenomena in lateral devices. <i>ACS Nano</i> , 2013 , 7, 6806-15	16.7	38
157	Interaction of a 180°ferroelectric domain wall with a biased scanning probe microscopy tip: Effective wall geometry and thermodynamics in Ginzburg-Landau-Devonshire theory. <i>Physical Review B</i> , 2008 , 78,	3.3	38

156	Quantification of in-contact probe-sample electrostatic forces with dynamic atomic force microscopy. <i>Nanotechnology</i> , 2017 , 28, 065704	3.4	37
155	Locally Controlled Cu-Ion Transport in Layered Ferroelectric CuInPS. <i>ACS Applied Materials & Interfaces</i> , 2018 , 10, 27188-27194	9.5	35
154	Probing local bias-induced transitions using photothermal excitation contact resonance atomic force microscopy and voltage spectroscopy. <i>ACS Nano</i> , 2015 , 9, 1848-57	16.7	35
153	Pressure-induced switching in ferroelectrics: Phase-field modeling, electrochemistry, flexoelectric effect, and bulk vacancy dynamics. <i>Physical Review B</i> , 2017 , 96,	3.3	34
152	Multifrequency spectrum analysis using fully digital G Mode-Kelvin probe force microscopy. <i>Nanotechnology</i> , 2016 , 27, 105706	3.4	33
151	A bridge for accelerating materials by design. <i>Npj Computational Materials</i> , 2015 , 1,	10.9	33
150	Defect-induced asymmetry of local hysteresis loops on BiFeO ₃ surfaces. <i>Journal of Materials Science</i> , 2009 , 44, 5095-5101	4.3	32
149	Defect-driven flexochemical coupling in thin ferroelectric films. <i>Physical Review B</i> , 2018 , 97,	3.3	31
148	Paving the way to nanoionics: atomic origin of barriers for ionic transport through interfaces. <i>Scientific Reports</i> , 2015 , 5, 17229	4.9	31
147	Local polarization switching in the presence of surface-charged defects: Microscopic mechanisms and piezoresponse force spectroscopy observations. <i>Physical Review B</i> , 2008 , 78,	3.3	31
146	Chemical State Evolution in Ferroelectric Films during Tip-Induced Polarization and Electroresistive Switching. <i>ACS Applied Materials & Interfaces</i> , 2016 , 8, 29588-29593	9.5	31
145	Time-Resolved Electrical Scanning Probe Microscopy of Layered Perovskites Reveals Spatial Variations in Photoinduced Ionic and Electronic Carrier Motion. <i>ACS Nano</i> , 2019 , 13, 2812-2821	16.7	30
144	Domain Wall Motion Across Various Grain Boundaries in Ferroelectric Thin Films. <i>Journal of the American Ceramic Society</i> , 2015 , 98, 1848-1857	3.8	29
143	Effect of doping on surface reactivity and conduction mechanism in samarium-doped ceria thin films. <i>ACS Nano</i> , 2014 , 8, 12494-501	16.7	29
142	Quantitative determination of tip parameters in piezoresponse force microscopy. <i>Applied Physics Letters</i> , 2007 , 90, 212905	3.4	29
141	Deep neural networks for understanding noisy data applied to physical property extraction in scanning probe microscopy. <i>Npj Computational Materials</i> , 2019 , 5,	10.9	28
140	Open-loop band excitation Kelvin probe force microscopy. <i>Nanotechnology</i> , 2012 , 23, 125704	3.4	28
139	Intermittent contact mode piezoresponse force microscopy in a liquid environment. <i>Nanotechnology</i> , 2009 , 20, 195701	3.4	27

138	Dynamic behavior of CH ₃ NH ₃ PbI ₃ perovskite twin domains. <i>Applied Physics Letters</i> , 2018 , 113, 072102	3.4	26
137	Full information acquisition in piezoresponse force microscopy. <i>Applied Physics Letters</i> , 2015 , 107, 263102	3.4	26
136	Acoustic Detection of Phase Transitions at the Nanoscale. <i>Advanced Functional Materials</i> , 2016 , 26, 478-486	4.6	25
135	Magnetostriction-polarization coupling in multiferroic MnMnWO. <i>Nature Communications</i> , 2017 , 8, 20371	17.4	25
134	Energy dissipation measurements in frequency-modulated scanning probe microscopy. <i>Nanotechnology</i> , 2010 , 21, 455705	3.4	25
133	Giant negative electrostriction and dielectric tunability in a van der Waals layered ferroelectric. <i>Physical Review Materials</i> , 2019 , 3,	3.2	25
132	Knowledge Extraction from Atomically Resolved Images. <i>ACS Nano</i> , 2017 , 11, 10313-10320	16.7	24
131	Finite size effects in ferroelectric-semiconductor thin films under open-circuit electric boundary conditions. <i>Journal of Applied Physics</i> , 2015 , 117, 034102	2.5	24
130	Labyrinthine domains in ferroelectric nanoparticles: Manifestation of a gradient-induced morphological transition. <i>Physical Review B</i> , 2018 , 98,	3.3	24
129	Mapping mesoscopic phase evolution during E-beam induced transformations via deep learning of atomically resolved images. <i>Npj Computational Materials</i> , 2018 , 4,	10.9	24
128	Constraining Data Mining with Physical Models: Voltage- and Oxygen Pressure-Dependent Transport in Multiferroic Nanostructures. <i>Nano Letters</i> , 2015 , 15, 6650-7	11.5	23
127	Direct probe of interplay between local structure and superconductivity in FeTe _{1-x} Se _x . <i>ACS Nano</i> , 2013 , 7, 2634-41	16.7	23
126	Probing Local and Global Ferroelectric Phase Stability and Polarization Switching in Ordered Macroporous PZT. <i>Advanced Functional Materials</i> , 2011 , 21, 941-947	15.6	23
125	Scaling and disorder analysis of local I-V curves from ferroelectric thin films of lead zirconate titanate. <i>Nanotechnology</i> , 2011 , 22, 254031	3.4	23
124	Origin of piezoelectric response under a biased scanning probe microscopy tip across a 180° ferroelectric domain wall. <i>Physical Review B</i> , 2012 , 86,	3.3	23
123	Single-atom fabrication with electron and ion beams: From surfaces and two-dimensional materials toward three-dimensional atom-by-atom assembly. <i>MRS Bulletin</i> , 2017 , 42, 637-643	3.2	22
122	Field enhancement of electronic conductance at ferroelectric domain walls. <i>Nature Communications</i> , 2017 , 8, 1318	17.4	22
121	Local probing of relaxation time distributions in ferroelectric polymer nanomesas: Time-resolved piezoresponse force spectroscopy and spectroscopic imaging. <i>Applied Physics Letters</i> , 2008 , 92, 232903	3.4	22

120	Solid-state electrochemistry on the nanometer and atomic scales: the scanning probe microscopy approach. <i>Nanoscale</i> , 2016 , 8, 13838-58	7.7	22
119	Multifrequency imaging in the intermittent contact mode of atomic force microscopy: beyond phase imaging. <i>Small</i> , 2012 , 8, 1264-9	11	21
118	Polarization Dynamics in Ferroelectric Capacitors: Local Perspective on Emergent Collective Behavior and Memory Effects. <i>Advanced Functional Materials</i> , 2013 , 23, 2490-2508	15.6	21
117	Domain dynamics in piezoresponse force spectroscopy: Quantitative deconvolution and hysteresis loop fine structure. <i>Applied Physics Letters</i> , 2008 , 92, 182909	3.4	21
116	Mitigating e-beam-induced hydrocarbon deposition on graphene for atomic-scale scanning transmission electron microscopy studies. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2018 , 36, 011801	1.3	20
115	Electrochemical strain microscopy of local electrochemical processes in solids: mechanism of imaging and spectroscopy in the diffusion limit. <i>Journal of Electroceramics</i> , 2014 , 32, 51-59	1.5	20
114	Universality of Polarization Switching Dynamics in Ferroelectric Capacitors Revealed by 5D Piezoresponse Force Microscopy. <i>Advanced Functional Materials</i> , 2013 , 23, 3971-3979	15.6	20
113	Effect of the intrinsic width on the piezoelectric force microscopy of a single ferroelectric domain wall. <i>Journal of Applied Physics</i> , 2008 , 103, 124110	2.5	19
112	Fast Scanning Probe Microscopy via Machine Learning: Non-Rectangular Scans with Compressed Sensing and Gaussian Process Optimization. <i>Small</i> , 2020 , 16, e2002878	11	19
111	Intrinsic structural instabilities of domain walls driven by gradient coupling: Meandering antiferrodistortive-ferroelectric domain walls in BiFeO ₃ . <i>Physical Review B</i> , 2019 , 99,	3.3	18
110	Toward Electrochemical Studies on the Nanometer and Atomic Scales: Progress, Challenges, and Opportunities. <i>ACS Nano</i> , 2019 , 13, 9735-9780	16.7	18
109	Nanoscale Probing of Voltage Activated Oxygen Reduction/Evolution Reactions in Nanopatterned (La _x Sr _{1-x})CoO ₃ -Cathodes. <i>Advanced Energy Materials</i> , 2013 , 3, 788-797	21.8	18
108	Lost surface waves in nonpiezoelectric solids. <i>Physical Review B</i> , 2017 , 96,	3.3	18
107	Coupling of electrical and mechanical switching in nanoscale ferroelectrics. <i>Applied Physics Letters</i> , 2015 , 107, 202905	3.4	18
106	Interrelation between Structure and Magnetic Properties in La _{0.5} Sr _{0.5} CoO ₃ . <i>Advanced Materials Interfaces</i> , 2014 , 1, 1400203	4.6	18
105	Nanoscale Origins of Nonlinear Behavior in Ferroic Thin Films. <i>Advanced Functional Materials</i> , 2013 , 23, 81-90	15.6	18
104	Half-harmonic Kelvin probe force microscopy with transfer function correction. <i>Applied Physics Letters</i> , 2012 , 100, 063118	3.4	18
103	Resonance frequency analysis for surface-coupled atomic force microscopy cantilever in ambient and liquid environments. <i>Applied Physics Letters</i> , 2008 , 92, 083102	3.4	18

102	Direct Probing of Polarization Charge at Nanoscale Level. <i>Advanced Materials</i> , 2018 , 30, 1703675	24	18
101	E-beam manipulation of Si atoms on graphene edges with an aberration-corrected scanning transmission electron microscope. <i>Nano Research</i> , 2018 , 11, 6217-6226	10	17
100	Finite-size effects of hysteretic dynamics in multilayer graphene on a ferroelectric. <i>Physical Review B</i> , 2015 , 91,	3.3	17
99	Roto-flexoelectric coupling impact on the phase diagrams and pyroelectricity of thin SrTiO3 films. <i>Journal of Applied Physics</i> , 2012 , 112, 064111	2.5	17
98	Local probing of electrochemically induced negative differential resistance in TiO2 memristive materials. <i>Nanotechnology</i> , 2013 , 24, 085702	3.4	17
97	Variable temperature electrochemical strain microscopy of Sm-doped ceria. <i>Nanotechnology</i> , 2013 , 24, 145401	3.4	17
96	Atomic Mechanisms for the Si Atom Dynamics in Graphene: Chemical Transformations at the Edge and in the Bulk. <i>Advanced Functional Materials</i> , 2019 , 29, 1904480	15.6	17
95	Exploring the Magnetoelectric Coupling at the Composite Interfaces of FE/FM/FE Heterostructures. <i>Scientific Reports</i> , 2018 , 8, 17381	4.9	17
94	Thickness, humidity, and polarization dependent ferroelectric switching and conductivity in Mg doped lithium niobate. <i>Journal of Applied Physics</i> , 2015 , 118, 244103	2.5	16
93	Multidimensional dynamic piezoresponse measurements: Unraveling local relaxation behavior in relaxor-ferroelectrics via big data. <i>Journal of Applied Physics</i> , 2015 , 118, 072003	2.5	15
92	Cold-field switching in PVDF-TrFE ferroelectric polymer nanomesas. <i>Physical Review Letters</i> , 2012 , 108, 027603	7.4	15
91	High-frequency electromechanical imaging of ferroelectrics in a liquid environment. <i>ACS Nano</i> , 2012 , 6, 5559-65	16.7	15
90	Local Probing of Ferroelectric and Ferroelastic Switching through Stress-Mediated Piezoelectric Spectroscopy. <i>Advanced Materials Interfaces</i> , 2016 , 3, 1500470	4.6	15
89	Rapid mapping of polarization switching through complete information acquisition. <i>Nature Communications</i> , 2016 , 7, 13290	17.4	15
88	Ion transport and softening in a polymerized ionic liquid. <i>Nanoscale</i> , 2015 , 7, 947-55	7.7	14
87	YCrWO6: Polar and Magnetic Oxide with CaTa2O6-Related Structure. <i>Chemistry of Materials</i> , 2018 , 30, 1045-1054	9.6	14
86	Toward Decoding the Relationship between Domain Structure and Functionality in Ferroelectrics via Hidden Latent Variables. <i>ACS Applied Materials & Interfaces</i> , 2021 , 13, 1693-1703	9.5	14
85	Piezoresponse of ferroelectric films in ferroionic states: Time and voltage dynamics. <i>Applied Physics Letters</i> , 2017 , 110, 182907	3.4	13

84	Surface Chemistry Controls Anomalous Ferroelectric Behavior in Lithium Niobate. <i>ACS Applied Materials & Interfaces</i> , 2018 , 10, 29153-29160	9.5	13
83	Local Polarization Switching in Piezoresponse Force Microscopy. <i>Ferroelectrics</i> , 2007 , 354, 198-207	0.6	13
82	Decoupling indirect topographic cross-talk in band excitation piezoresponse force microscopy imaging and spectroscopy. <i>Applied Physics Letters</i> , 2016 , 108, 252902	3.4	13
81	Machine learning-based multidomain processing for texture-based image segmentation and analysis. <i>Applied Physics Letters</i> , 2020 , 116, 044103	3.4	12
80	Probing local electromechanical effects in highly conductive electrolytes. <i>ACS Nano</i> , 2012 , 6, 10139-46	16.7	12
79	Temperature-dependent phase transitions in zeptoliter volumes of a complex biological membrane. <i>Nanotechnology</i> , 2011 , 22, 055709	3.4	12
78	Imaging via complete cantilever dynamic detection: general dynamic mode imaging and spectroscopy in scanning probe microscopy. <i>Nanotechnology</i> , 2016 , 27, 414003	3.4	12
77	Nanoscale Electrochemical Phenomena of Polarization Switching in Ferroelectrics. <i>ACS Applied Materials & Interfaces</i> , 2018 , 10, 38217-38222	9.5	12
76	Frequency spectroscopy of irreversible electrochemical nucleation kinetics on the nanoscale. <i>Nanoscale</i> , 2013 , 5, 11964-70	7.7	11
75	Indentation of a punch with chemical or heat distribution at its base into transversely isotropic half-space: Application to local thermal and electrochemical probes. <i>Journal of Applied Physics</i> , 2013 , 113, 187201	2.5	11
74	Electrochemical Strain Microscopy: Probing Electrochemical Transformations in Nanoscale Volumes. <i>Microscopy Today</i> , 2012 , 20, 10-15	0.4	11
73	Band Excitation Scanning Probe Microscopies. <i>Microscopy Today</i> , 2010 , 18, 34-40	0.4	11
72	Automated and Autonomous Experiments in Electron and Scanning Probe Microscopy. <i>ACS Nano</i> , 2021 ,	16.7	11
71	Reducing Time to Discovery: Materials and Molecular Modeling, Imaging, Informatics, and Integration. <i>ACS Nano</i> , 2021 , 15, 3971-3995	16.7	11
70	High-veracity functional imaging in scanning probe microscopy via Graph-Bootstrapping. <i>Nature Communications</i> , 2018 , 9, 2428	17.4	11
69	Piezoresponse amplitude and phase quantified for electromechanical characterization. <i>Journal of Applied Physics</i> , 2020 , 128, 171105	2.5	10
68	Spatially-resolved mapping of history-dependent coupled electrochemical and electrical behaviors of electroresistive NiO. <i>Scientific Reports</i> , 2014 , 4, 6725	4.9	10
67	Self-Assembled Room Temperature Multiferroic BiFeO ₃ -LiFe ₅ O ₈ Nanocomposites. <i>Advanced Functional Materials</i> , 2020 , 30, 1906849	15.6	10

66	Imaging mechanism for hyperspectral scanning probe microscopy via Gaussian process modelling. <i>Npj Computational Materials</i> , 2020 , 6,	10.9	9
65	Exploring Polarization Rotation Instabilities in Super-Tetragonal BiFeO ₃ Epitaxial Thin Films and Their Technological Implications. <i>Advanced Electronic Materials</i> , 2016 , 2, 1600307	6.4	9
64	Probing Bias-Dependent Electrochemical Gas/Solid Reactions in (La _x Sr _{1-x})CoO ₃ Cathode Materials. <i>Advanced Functional Materials</i> , 2013 , 23, 5027-5036	15.6	9
63	Ferromagnetic-like behavior of BiLaFeO-KBr nanocomposites. <i>Scientific Reports</i> , 2019 , 9, 10417	4.9	7
62	Nanoscale Probing of Elastic-Electronic Response to Vacancy Motion in NiO Nanocrystals. <i>ACS Nano</i> , 2017 , 11, 8387-8394	16.7	7
61	Mesoscopic mechanism of the domain wall interaction with elastic defects in uniaxial ferroelectrics. <i>Journal of Applied Physics</i> , 2013 , 113, 187203	2.5	7
60	Dynamic Manipulation in Piezoresponse Force Microscopy: Creating Nonequilibrium Phases with Large Electromechanical Response. <i>ACS Nano</i> , 2020 , 14, 10569-10577	16.7	7
59	Disentangling Ferroelectric Wall Dynamics and Identification of Pinning Mechanisms via Deep Learning. <i>Advanced Materials</i> , 2021 , 33, e2103680	24	7
58	Electronic-Reconstruction-Enhanced Tunneling Conductance at Terrace Edges of Ultrathin Oxide Films. <i>Advanced Materials</i> , 2017 , 29, 1702001	24	6
57	Subtractive fabrication of ferroelectric thin films with precisely controlled thickness. <i>Nanotechnology</i> , 2018 , 29, 155302	3.4	6
56	Photothermoelastic contrast in nanoscale infrared spectroscopy. <i>Applied Physics Letters</i> , 2018 , 112, 033105	10.5	6
55	Quantitative Nanometer-Scale Mapping of Dielectric Tunability. <i>Advanced Materials Interfaces</i> , 2015 , 2, 1500088	4.6	6
54	Decoupling Mesoscale Functional Response in PLZT across the Ferroelectric-Relaxor Phase Transition with Contact Kelvin Probe Force Microscopy and Machine Learning. <i>ACS Applied Materials & Interfaces</i> , 2018 , 10, 42674-42680	9.5	6
53	Highly enhanced ferroelectricity in HfO ₂ -based ferroelectric thin film by light ion bombardment.. <i>Science</i> , 2022 , 376, 731-738	33.3	6
52	Decoding Apparent Ferroelectricity in Perovskite Nanofibers. <i>ACS Applied Materials & Interfaces</i> , 2017 , 9, 42131-42138	9.5	5
51	Preface to Special Topic: Piezoresponse Force Microscopy and Nanoscale Phenomena in Polar Materials. <i>Journal of Applied Physics</i> , 2012 , 112, 051901	2.5	5
50	Melting of spatially modulated phases at domain wall/surface junctions in antiferrodistortive multiferroics. <i>Physical Review B</i> , 2020 , 102,	3.3	5
49	Preface to Special Topic: Invited Papers from the International Symposium on Piezoresponse Force Microscopy and Nanoscale Phenomena in Polar Materials, Aveiro, Portugal, 2009. <i>Journal of Applied Physics</i> , 2010 , 108, 041901	2.5	4

48	Electronic switching by metastable polarization states in BiFeO ₃ thin films. <i>Physical Review Materials</i> , 2018 , 2,	3.2	4
47	Bayesian inference in band excitation scanning probe microscopy for optimal dynamic model selection in imaging. <i>Journal of Applied Physics</i> , 2020 , 128, 054105	2.5	4
46	Ensemble learning-iterative training machine learning for uncertainty quantification and automated experiment in atom-resolved microscopy. <i>Npj Computational Materials</i> , 2021 , 7,	10.9	4
45	Application of pan-sharpening algorithm for correlative multimodal imaging using AFM-IR. <i>Npj Computational Materials</i> , 2019 , 5,	10.9	3
44	High-Pressure, High-Temperature Synthesis and Characterization of Polar and Magnetic LuCrWO. <i>Inorganic Chemistry</i> , 2020 , 59, 3579-3584	5.1	3
43	Nanoscale Transport Imaging of Active Lateral Devices: Static and Frequency Dependent Modes. <i>Springer Series in Surface Sciences</i> , 2018 , 251-329	0.4	3
42	Dynamic Modes in Kelvin Probe Force Microscopy: Band Excitation and G-Mode. <i>Springer Series in Surface Sciences</i> , 2018 , 49-99	0.4	3
41	Intrinsic space charge layers and field enhancement in ferroelectric nanojunctions. <i>Applied Physics Letters</i> , 2015 , 107, 022903	3.4	3
40	Reply to Comment on Origin of piezoelectric response under a biased scanning probe microscopy tip across a 180° ferroelectric domain wall. <i>Physical Review B</i> , 2014 , 89,	3.3	3
39	Influence of the interfacing with an electrically inhomogeneous bottom electrode on the ferroelectric properties of epitaxial PbTiO ₃ . <i>Applied Physics Letters</i> , 2013 , 103, 192901	3.4	3
38	Super-resolution and signal separation in contact Kelvin probe force microscopy of electrochemically active ferroelectric materials. <i>Journal of Applied Physics</i> , 2020 , 128, 055101	2.5	3
37	Deep Data Analytics in Structural and Functional Imaging of Nanoscale Materials. <i>Springer Series in Materials Science</i> , 2018 , 103-128	0.9	3
36	Probing polarization dynamics at specific domain configurations: Computer-vision based automated experiment in piezoresponse force microscopy. <i>Applied Physics Letters</i> , 2021 , 119, 132902	3.4	3
35	Unraveling the hysteretic behavior at double cations-double halides perovskite - electrode interfaces. <i>Nano Energy</i> , 2021 , 89, 106428	17.1	3
34	Hypothesis learning in automated experiment: application to combinatorial materials libraries.. <i>Advanced Materials</i> , 2022 , e2201345	24	3
33	Patterning: Atomic-Level Sculpting of Crystalline Oxides: Toward Bulk Nanofabrication with Single Atomic Plane Precision (Small 44/2015). <i>Small</i> , 2015 , 11, 5854-5854	11	2
32	Scanning Probe Microscopy Forces and Currents in the Nanoscale World 2012 , 539-614		2
31	Scanning Probe Microscopy in US Department of Energy Nanoscale Science Research Centers: Status, Perspectives, and Opportunities. <i>Advanced Functional Materials</i> , 2013 , 23, 2468-2476	15.6	2

30	ELECTROCHEMICAL STRAIN MICROSCOPY OF LI-ION AND LI-AIR BATTERY MATERIALS. <i>World Scientific Series in Nanoscience and Nanotechnology</i> , 2013 , 393-454	0.1	2
29	Preface to special topic: Piezoresponse force microscopy and nanoscale phenomena in polar materials. <i>Journal of Applied Physics</i> , 2011 , 110, 051901	2.5	2
28	Mesosopic structure of mixed type domain walls in multiaxial ferroelectrics. <i>Physical Review Materials</i> , 2020 , 4,	3.2	2
27	Ferroelectric and Charge Transport Properties in Strain-Engineered Two-Dimensional Lead Iodide Perovskites. <i>Chemistry of Materials</i> , 2021 , 33, 4077-4088	9.6	2
26	Ferroelastic Nanodomain-mediated Mechanical Switching of Ferroelectricity in Thick Epitaxial Films. <i>Nano Letters</i> , 2021 , 21, 445-452	11.5	2
25	Predictability as a probe of manifest and latent physics: The case of atomic scale structural, chemical, and polarization behaviors in multiferroic Sm-doped BiFeO ₃ . <i>Applied Physics Reviews</i> , 2021 , 8, 011403	17.3	2
24	Probing Metastable Domain Dynamics Automated Experimentation in Piezoresponse Force Microscopy. <i>ACS Nano</i> , 2021 , 15, 15096-15103	16.7	2
23	Topological Defects in Ferroic Materials. <i>Springer Series in Materials Science</i> , 2016 , 181-197	0.9	1
22	Preface to Special Topic: Piezoresponse force microscopy and nanoscale phenomena in polar materials. <i>Journal of Applied Physics</i> , 2014 , 116, 066701	2.5	1
21	LOCAL PROBES IN THE NEXT DECADE OF ENERGY RESEARCH: BRIDGING MACROSCOPIC AND ATOMIC WORLDS. <i>World Scientific Series in Nanoscience and Nanotechnology</i> , 2013 , 3-35	0.1	1
20	Reconstruction and uncertainty quantification of lattice Hamiltonian model parameters from observations of microscopic degrees of freedom. <i>Journal of Applied Physics</i> , 2020 , 128, 214103	2.5	1
19	Tensor factorization for elucidating mechanisms of piezoresponse relaxation via dynamic Piezoresponse Force Spectroscopy. <i>Npj Computational Materials</i> , 2020 , 6,	10.9	1
18	Graphene Defect Editing, Deposition, and Growth via E-Beam-Induced Organic Reactions in Aberration Corrected STEM. <i>Microscopy and Microanalysis</i> , 2018 , 24, 1994-1995	0.5	1
17	A combined theoretical and experimental study of the phase coexistence and morphotropic boundaries in ferroelectric-antiferroelectric-antiferrodistortive multiferroics. <i>Acta Materialia</i> , 2021 , 213, 116939	8.4	1
16	Spectral Map Reconstruction Using Pan-Sharpning Algorithm: Enhancing Chemical Imaging with AFM-IR. <i>Microscopy and Microanalysis</i> , 2019 , 25, 1024-1025	0.5	0
15	Compressive Sensing on Diverse STEM Scans: Real-time Feedback, Low-dose and Dynamic Range. <i>Microscopy and Microanalysis</i> , 2019 , 25, 1688-1689	0.5	0
14	Multi-objective Bayesian optimization of ferroelectric materials with interfacial control for memory and energy storage applications. <i>Journal of Applied Physics</i> , 2021 , 130, 204102	2.5	0
13	Exploring Responses of Contact Kelvin Probe Force Microscopy in Triple-Cation Double-Halide Perovskites. <i>Journal of Physical Chemistry C</i> , 2021 , 125, 12355-12365	3.8	0

12	Tunable Microwave Conductance of Nanodomains in Ferroelectric PbZr 0.2 Ti 0.8 O 3 Thin Film. <i>Advanced Electronic Materials</i> , 2022 , 8, 2100952	6.4	o
11	Exploring Electro-Chemo-Mechanical Phenomena on the Nanoscale Using Scanning Probe Microscopy. <i>Kluwer International Series in Electronic Materials: Science and Technology</i> , 2017 , 137-160		
10	FerroNet: Machine Learning Flow for Analysis of Ferroelectric and Ferroelastic Materials. <i>Microscopy and Microanalysis</i> , 2019 , 25, 170-171	0.5	
9	Unsupervised Machine Learning to Distill Structural-Property Insights from 4D-STEM. <i>Microscopy and Microanalysis</i> , 2019 , 25, 12-13	0.5	
8	Atom-by-Atom Assembly in Aberration Corrected STEM and the Role of Chemistry at the Surface of Graphene. <i>Microscopy and Microanalysis</i> , 2018 , 24, 326-327	0.5	
7	Automated Atom-by-Atom Assembly of Structures in Graphene: The Rise of STEM for Atomic Scale Control. <i>Microscopy and Microanalysis</i> , 2018 , 24, 1594-1595	0.5	
6	The ORNL Lectures on Scanning Probe Microscopy, Part 1: Piezoresponse Force Microscopy and Spectroscopy of Ferroelectrics, Energy Materials, and Biological Systems. <i>Microscopy Today</i> , 2019 , 27, 12-16	0.4	
5	G-mode - Full Information Capture Applied to Scanning Probe Microscopy. <i>Microscopy and Microanalysis</i> , 2017 , 23, 184-185	0.5	
4	Nanoelectromechanics of Inorganic and Biological Systems: From Structural Imaging to Local Functionalities. <i>Microscopy Today</i> , 2008 , 16, 28-33	0.4	
3	Mesoscopic theory of defect ordering-disordering transitions in thin oxide films. <i>Scientific Reports</i> , 2020 , 10, 22377	4.9	
2	Piezoresponse Force Microscopy and Spectroscopy 2016 , 3252-3263		
1	Multimodal Chemical and Functional Imaging of Nanoscale Transformations Away from Equilibrium. <i>Microscopy and Microanalysis</i> , 2018 , 24, 1042-1043	0.5	