Sergei V. Kalinin

List of Publications by Year
in descending order

805 papers	39,762 citations	2675 95 h-index	6471 157 g-index
823 all docs	823 docs citations	823 times ranked	23631 citing authors

#	Article	IF	Citations
1	Oxygen Vacancy Injection as a Pathway to Enhancing Electromechanical Response in Ferroelectrics. Advanced Materials, 2022, 34, e2106426.	21.0	20
2	Disentangling ferroelectric domain wall geometries and pathways in dynamic piezoresponse force microscopy via unsupervised machine learning. Nanotechnology, 2022, 33, 055707.	2.6	14
3	Towards automating structural discovery in scanning transmission electron microscopy [*]. Machine Learning: Science and Technology, 2022, 3, 015024.	5.0	11
4	Sculpting the Plasmonic Responses of Nanoparticles by Directed Electron Beam Irradiation. Small, 2022, 18, e2105099.	10.0	5
5	Physics makes the difference: Bayesian optimization and active learning via augmented Gaussian process. Machine Learning: Science and Technology, 2022, 3, 015003.	5.0	14
6	Latent Mechanisms of Polarization Switching from In Situ Electron Microscopy Observations. Advanced Functional Materials, 2022, 32, .	14.9	7
7	Machine learning in scanning transmission electron microscopy. Nature Reviews Methods Primers, 2022, 2, .	21.2	59
8	Hypothesis Learning in Automated Experiment: Application to Combinatorial Materials Libraries. Advanced Materials, 2022, 34, e2201345.	21.0	30
9	Chemical control of polarization in thin strained films of a multiaxial ferroelectric: Phase diagrams and polarization rotation. Physical Review B, 2022, 105, .	3.2	2
10	Experimental discovery of structureâ€“property relationships in ferroelectric materials via active learning. Nature Machine Intelligence, 2022, 4, 341-350.	16.0	37
11	Exploring Causal Physical Mechanisms via Non-Gaussian Linear Models and Deep Kernel Learning: Applications for Ferroelectric Domain Structures. ACS Nano, 2022, 16, 1250-1259.	14.6	12
12	Tunable Microwave Conductance of Nanodomains in Ferroelectric PbZr _{0.2} Ti _{0.8} O ₃ Thin Film. Advanced Electronic Materials, 2022, 8, 2100952.	5.1	5
13	Bridging microscopy with molecular dynamics and quantum simulations: an atomAI based pipeline. Npj Computational Materials, 2022, 8, .	8.7	10
14	Automated Experiment in 4D-STEM: Exploring Emergent Physics and Structural Behaviors. ACS Nano, 2022, 16, 7605-7614.	14.6	23
15	Exploring leakage in dielectric films via automated experiments in scanning probe microscopy. Applied Physics Letters, 2022, 120, .	3.3	5
16	Highly enhanced ferroelectricity in HfO ₂ -based ferroelectric thin film by light ion bombardment. Science, 2022, 376, 731-738.	12.6	58
17	Observability of negative capacitance of a ferroelectric film: Theoretical predictions. Physical Review B, 2022, 105, .	3.2	2
18	Size Effect of Local Current-Voltage Characteristics of <i>MX</i> ₂ Nanoflakes: Local Density of States Reconstruction from Scanning Tunneling Microscopy Experiments. Physical Review Applied, 2022, 17, .	3.8	0

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19	Dynamic control of ferroionic states in ferroelectric nanoparticles. Acta Materialia, 2022, 237, 118138.	7.9	2
20	Strain-Induced asymmetry and on-site dynamics of silicon defects in graphene. Carbon Trends, 2022, 9, 100189.	3.0	0
21	Ferroelastic Nanodomain-mediated Mechanical Switching of Ferroelectricity in Thick Epitaxial Films. Nano Letters, 2021, 21, 445-452.	9.1	10
22	Probing potential energy landscapes via electron-beam-induced single atom dynamics. Acta Materialia, 2021, 203, 116508.	7.9	5
23	Direct Observation of Photoinduced Ion Migration in Lead Halide Perovskites. Advanced Functional Materials, 2021, 31, 2008777.	14.9	41
24	Quantifying the Dynamics of Protein Self-Organization Using Deep Learning Analysis of Atomic Force Microscopy Data. Nano Letters, 2021, 21, 158-165.	9.1	17
25	Towards data-driven next-generation transmission electron microscopy. Nature Materials, 2021, 20, 274-279.	27.5	130
26	Alignment of Au nanorods along <i>de novo</i> designed protein nanofibers studied with automated image analysis. Soft Matter, 2021, 17, 6109-6115.	2.7	4
27	Toward Decoding the Relationship between Domain Structure and Functionality in Ferroelectrics via Hidden Latent Variables. ACS Applied Materials & Interfaces, 2021, 13, 1693-1703.	8.0	22
28	Off-the-shelf deep learning is not enough, and requires parsimony, Bayesianity, and causality. Npj Computational Materials, 2021, 7, .	8.7	28
29	Reducing Time to Discovery: Materials and Molecular Modeling, Imaging, Informatics, and Integration. ACS Nano, 2021, 15, 3971-3995.	14.6	36
30	Computational scanning tunneling microscope image database. Scientific Data, 2021, 8, 57.	5.3	15
31	Predictability as a probe of manifest and latent physics: The case of atomic scale structural, chemical, and polarization behaviors in multiferroic Sm-doped BiFeO3. Applied Physics Reviews, 2021, 8, .	11.3	7
32	Thermodynamics of order and randomness in dopant distributions inferred from atomically resolved imaging. Npj Computational Materials, 2021, 7, .	8.7	1
33	Investigating phase transitions from local crystallographic analysis based on statistical learning of atomic environments in 2D MoS2-ReS2. Applied Physics Reviews, 2021, 8, 011409.	11.3	7
34	Exploring order parameters and dynamic processes in disordered systems via variational autoencoders. Science Advances, 2021, 7, .	10.3	38
35	Disentangling Rotational Dynamics and Ordering Transitions in a System of Self-Organizing Protein Nanorods <i>via</i> Rotationally Invariant Latent Representations. ACS Nano, 2021, 15, 6471-6480.	14.6	19
36	Separating Physically Distinct Mechanisms in Complex Infrared Plasmonic Nanostructures via Machine Learning Enhanced Electron Energy Loss Spectroscopy. Advanced Optical Materials, 2021, 9, 2001808.	7.3	13

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37	Predictability of Localized Plasmonic Responses in Nanoparticle Assemblies. Small, 2021, 17, e2100181.	10.0	17
38	Correlation Between Corrugation-Induced Flexoelectric Polarization and Conductivity of Low-Dimensional Transition Metal Dichalcogenides. Physical Review Applied, 2021, 15, .	3.8	12
39	Role of Decomposition Product Ions in Hysteretic Behavior of Metal Halide Perovskite. ACS Nano, 2021, 15, 9017-9026.	14.6	13
40	Ferroelectric and Charge Transport Properties in Strain-Engineered Two-Dimensional Lead Iodide Perovskites. Chemistry of Materials, 2021, 33, 4077-4088.	6.7	10
41	Probing atomic-scale symmetry breaking by rotationally invariant machine learning of multidimensional electron scattering. Npj Computational Materials, 2021, 7, .	8.7	15
42	Exploring Responses of Contact Kelvin Probe Force Microscopy in Triple-Cation Double-Halide Perovskites. Journal of Physical Chemistry C, 2021, 125, 12355-12365.	3.1	3
43	Revealing the Chemical Bonding in Adatom Arrays via Machine Learning of Hyperspectral Scanning Tunneling Spectroscopy Data. ACS Nano, 2021, 15, 11806-11816.	14.6	13
44	Bayesian Learning of Adatom Interactions from Atomically Resolved Imaging Data. ACS Nano, 2021, 15, 9649-9657.	14.6	8
45	Ferroic Halide Perovskite Optoelectronics. Advanced Functional Materials, 2021, 31, 2102793.	14.9	23
46	Exploring Transport Behavior in Hybrid Perovskites Solar Cells via Machine Learning Analysis of Environmentalâ€Dependent Impedance Spectroscopy. Advanced Science, 2021, 8, e2002510.	11.2	23
47	Electron beam modification of plasmonic responses of nanoparticles. Microscopy and Microanalysis, 2021, 27, 3066-3068.	0.4	0
48	Automated Experiment in SPM: Bayesian Optimization for efficient searching of parameter space to maximize functional response. Microscopy and Microanalysis, 2021, 27, 470-471.	0.4	1
49	Building an edge computing infrastructure for rapid multi-dimensional electron microscopy. Microscopy and Microanalysis, 2021, 27, 56-57.	0.4	2
50	Ensemble learning-iterative training machine learning for uncertainty quantification and automated experiment in atom-resolved microscopy. Npj Computational Materials, 2021, 7, .	8.7	26
51	Atomic-scale Feedback-controlled Electron Beam Fabrication of 2D Materials. Microscopy and Microanalysis, 2021, 27, 3072-3073.	0.4	0
52	Autonomous Experiments in Scanning Probe Microscopy and Spectroscopy: Choosing Where to Explore Polarization Dynamics in Ferroelectrics. ACS Nano, 2021, 15, 11253-11262.	14.6	23
53	Automated and Autonomous Experiments in Electron and Scanning Probe Microscopy. ACS Nano, 2021, 15, 12604-12627.	14.6	49
54	Automatic detection of crystallographic defects in STEM images by unsupervised learning with translational invariance. Microscopy and Microanalysis, 2021, 27, 1460-1462.	0.4	1

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55	A combined theoretical and experimental study of the phase coexistence and morphotropic boundaries in ferroelectric-antiferroelectric-antiferrodistortive multiferroics. Acta Materialia, 2021, 213, 116939.	7.9	3
56	Propagation of priors for more accurate and efficient spectroscopic functional fits and their application to ferroelectric hysteresis. Machine Learning: Science and Technology, 2021, 2, 045002.	5.0	2
57	Direct mapping of polarization fields from STEM images: A Deep Learning based exploration of ferroelectrics. Microscopy and Microanalysis, 2021, 27, 2990-2992.	0.4	0
58	Electron Beam Control of Dopants in 2D and 3D Materials. Microscopy and Microanalysis, 2021, 27, 2150-2153.	0.4	0
59	Stress-induced phase transitions in nanoscale <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Cu</mml:mi><mml:mi>In</mml:mi><mml:msub><mml:m mathvariant="normal">P</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:mn>6</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2021, 104, .	3.2	14
60	Flexosensitive polarization vortices in thin ferroelectric films. Physical Review B, 2021, 104, .	3.2	9
61	Deep learning ferroelectric polarization distributions from STEM data via with and without atom finding. Npj Computational Materials, 2021, 7, .	8.7	5
62	Disentangling Ferroelectric Wall Dynamics and Identification of Pinning Mechanisms via Deep Learning. Advanced Materials, 2021, 33, e2103680.	21.0	17
63	Sub-10 nm Probing of Ferroelectricity in Heterogeneous Materials by Machine Learning Enabled Contact Kelvin Probe Force Microscopy. ACS Applied Electronic Materials, 2021, 3, 4409-4417.	4.3	3
64	Decoding the shift-invariant data: applications for band-excitation scanning probe microscopy [*]. Machine Learning: Science and Technology, 2021, 2, 045028.	5.0	5
65	Gaussian process analysis of electron energy loss spectroscopy data: multivariate reconstruction and kernel control. Npj Computational Materials, 2021, 7, .	8.7	6
66	Probing polarization dynamics at specific domain configurations: Computer-vision based automated experiment in piezoresponse force microscopy. Applied Physics Letters, 2021, 119, .	3.3	5
67	Probing Metastable Domain Dynamics <i>via</i> Automated Experimentation in Piezoresponse Force Microscopy. ACS Nano, 2021, 15, 15096-15103.	14.6	6
68	Identification and correction of temporal and spatial distortions in scanning transmission electron microscopy. Ultramicroscopy, 2021, 229, 113337.	1.9	6
69	Unraveling the hysteretic behavior at double cations-double halides perovskite - electrode interfaces. Nano Energy, 2021, 89, 106428.	16.0	11
70	Distilling nanoscale heterogeneity of amorphous silicon using tip-enhanced Raman spectroscopy (TERS) via multiresolution manifold learning. Nature Communications, 2021, 12, 578.	12.8	25
71	Machine learning for high-throughput experimental exploration of metal halide perovskites. Joule, 2021, 5, 2797-2822.	24.0	44
72	Exploring the physics of cesium lead halide perovskite quantum dots via Bayesian inference of the photoluminescence spectra in automated experiment. Nanophotonics, 2021, 10, 1977-1989.	6.0	15

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73	Effect of Surface Ionic Screening on Polarization Reversal and Phase Diagrams in Thin Antiferroelectric Films for Information and Energy Storage. Physical Review Applied, 2021, 16, .	3.8	9
74	Defect detection in atomic-resolution images via unsupervised learning with translational invariance. Npj Computational Materials, 2021, 7, .	8.7	11
75	Tracking atomic structure evolution during directed electron beam induced Si-atom motion in graphene via deep machine learning. Nanotechnology, 2021, 32, 035703.	2.6	10
76	Exploring electron beam induced atomic assembly via reinforcement learning in a molecular dynamics environment. Nanotechnology, 2021, , .	2.6	4
77	Multi-objective Bayesian optimization of ferroelectric materials with interfacial control for memory and energy storage applications. Journal of Applied Physics, 2021, 130, .	2.5	15
78	High-Throughput Study of Antisolvents on the Stability of Multicomponent Metal Halide Perovskites through Robotics-Based Synthesis and Machine Learning Approaches. Journal of the American Chemical Society, 2021, 143, 19945-19955.	13.7	35
79	Deep Bayesian local crystallography. Npj Computational Materials, 2021, 7, .	8.7	15
80	Selfâ€Assembled Room Temperature Multiferroic BiFeO₃â€LiFe₅O₈ Nanocomposites. Advanced Functional Materials, 2020, 30, 1906849.	14.9	14
81	Possible electrochemical origin of ferroelectricity in HfO2 thin films. Journal of Alloys and Compounds, 2020, 830, 153628.	5.5	57
82	Tunable quadruple-well ferroelectric van der Waals crystals. Nature Materials, 2020, 19, 43-48.	27.5	140
83	Statistical learning of governing equations of dynamics from in-situ electron microscopy imaging data. Materials and Design, 2020, 195, 108973.	7.0	8
84	Chemical Robotics Enabled Exploration of Stability in Multicomponent Lead Halide Perovskites via Machine Learning. ACS Energy Letters, 2020, 5, 3426-3436.	17.4	66
85	Piezoelectric domain walls in van der Waals antiferroelectric CuInP2Se6. Nature Communications, 2020, 11, 3623.	12.8	47
86	The joint automated repository for various integrated simulations (JARVIS) for data-driven materials design. Npj Computational Materials, 2020, 6, .	8.7	181
87	Dynamic Manipulation in Piezoresponse Force Microscopy: Creating Nonequilibrium Phases with Large Electromechanical Response. ACS Nano, 2020, 14, 10569-10577.	14.6	14
88	Fast Scanning Probe Microscopy via Machine Learning: Nonâ€Rectangular Scans with Compressed Sensing and Gaussian Process Optimization. Small, 2020, 16, e2002878.	10.0	37
89	Super-resolution and signal separation in contact Kelvin probe force microscopy of electrochemically active ferroelectric materials. Journal of Applied Physics, 2020, 128, 055101.	2.5	6
90	Exploring phase transitions and magnetoelectric coupling of epitaxial asymmetric multilayer heterostructures. Journal of Materials Chemistry C, 2020, 8, 12113-12122.	5.5	8

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91	Melting of spatially modulated phases at domain wall/surface junctions in antiferrodistortive multiferroics. Physical Review B, 2020, 102, .	3.2	5
92	Tensor factorization for elucidating mechanisms of piezoresponse relaxation via dynamic Piezoresponse Force Spectroscopy. Npj Computational Materials, 2020, 6, .	8.7	2
93	Causal analysis of competing atomistic mechanisms in ferroelectric materials from high-resolution scanning transmission electron microscopy data. Npj Computational Materials, 2020, 6, .	8.7	21
94	Flexoinduced ferroelectricity in low-dimensional transition metal dichalcogenides. Physical Review B, 2020, 102, .	3.2	15
95	Induced ferroelectric phases in SrTiO₃ by a nanocomposite approach. Nanoscale, 2020, 12, 18193-18199.	5.6	15
96	Hysteretic Ion Migration and Remanent Field in Metal Halide Perovskites. Advanced Science, 2020, 7, 2001176.	11.2	29
97	Bayesian inference in band excitation scanning probe microscopy for optimal dynamic model selection in imaging. Journal of Applied Physics, 2020, 128, 054105.	2.5	8
98	Operando Imaging of Ion Migration in Metal Halide Perovskites. Microscopy and Microanalysis, 2020, 26, 2046-2048.	0.4	0
99	Exploring physics of ferroelectric domain walls via Bayesian analysis of atomically resolved STEM data. Nature Communications, 2020, 11, 6361.	12.8	17
100	Piezoresponse amplitude and phase quantified for electromechanical characterization. Journal of Applied Physics, 2020, 128, .	2.5	31
101	Phenomenological description of bright domain walls in ferroelectric-antiferroelectric layered chalcogenides. Physical Review B, 2020, 102, .	3.2	10
102	Accurately Imaging, Tracking and Moving Single Atoms. Microscopy and Microanalysis, 2020, 26, 2556-2557.	0.4	0
103	Phase diagrams of single-layer two-dimensional transition metal dichalcogenides: Landau theory. Physical Review B, 2020, 101, .	3.2	7
104	Room temperature multiferroicity and magnetodielectric coupling in 0â€“3 composite thin films. Journal of Applied Physics, 2020, 127, .	2.5	16
105	Reconstruction of the interatomic forces from dynamic scanning transmission electron microscopy data. Journal of Applied Physics, 2020, 127, 224301.	2.5	2
106	Direct matter disassembly via electron beam control: electron-beam-mediated catalytic etching of graphene by nanoparticles. Nanotechnology, 2020, 31, 245303.	2.6	4
107	Correlation of Spatiotemporal Dynamics of Polarization and Charge Transport in Blended Hybrid Organicâ€“Inorganic Perovskites on Macro- and Nanoscales. ACS Applied Materials & Interfaces, 2020, 12, 15380-15388.	8.0	5
108	Alignment of Polarization against an Electric Field in van der Waals Ferroelectrics. Physical Review Applied, 2020, 13, .	3.8	34

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109	Ordering with a twist. Nature Nanotechnology, 2020, 15, 515-516.	31.5	2
110	Guided search for desired functional responses via Bayesian optimization of generative model: Hysteresis loop shape engineering in ferroelectrics. Journal of Applied Physics, 2020, 128, .	2.5	9
111	Reconstruction of effective potential from statistical analysis of dynamic trajectories. AIP Advances, 2020, 10, .	1.3	4
112	Strain-polarization coupling mechanism of enhanced conductivity at the grain boundaries in BiFeO3thin films. Applied Materials Today, 2020, 20, 100740.	4.3	7
113	Exploration of Electrochemical Reactions at Organicâ€“Inorganic Halide Perovskite Interfaces via Machine Learning in In Situ Timeâ€ofâ€Flight Secondary Ion Mass Spectrometry. Advanced Functional Materials, 2020, 30, 2001995.	14.9	30
114	Machine learning-based multidomain processing for texture-based image segmentation and analysis. Applied Physics Letters, 2020, 116, .	3.3	19
115	High-Pressure, High-Temperature Synthesis and Characterization of Polar and Magnetic LuCrWO₆. Inorganic Chemistry, 2020, 59, 3579-3584.	4.0	9
116	Strainâ€“Chemical Gradient and Polarization in Metal Halide Perovskites. Advanced Electronic Materials, 2020, 6, 1901235.	5.1	19
117	Electron-beam introduction of heteroatomic Ptâ€“Si structures in graphene. Carbon, 2020, 161, 750-757.	10.3	34
118	Variable voltage electron microscopy: Toward atom-by-atom fabrication in 2D materials. Ultramicroscopy, 2020, 211, 112949.	1.9	14
119	Imaging mechanism for hyperspectral scanning probe microscopy via Gaussian process modelling. Npj Computational Materials, 2020, 6, .	8.7	19
120	Estimating Preisach Density via Subset Selection. IEEE Access, 2020, 8, 61767-61774.	4.2	1
121	Exploration of lattice Hamiltonians for functional and structural discovery via Gaussian process-based explorationâ€“exploitation. Journal of Applied Physics, 2020, 128, 164304.	2.5	8
122	Reconstruction and uncertainty quantification of lattice Hamiltonian model parameters from observations of microscopic degrees of freedom. Journal of Applied Physics, 2020, 128, 214103.	2.5	2
123	Deep learning of interface structures from simulated 4D STEM data: cation intermixing vs. roughening ^{^{âˆ—}}. Machine Learning: Science and Technology, 2020, 1, 04LT01.	5.0	6
124	Mesoscopic structure of mixed type domain walls in multiaxial ferroelectrics. Physical Review Materials, 2020, 4, .	2.4	3
125	Detection of defects in atomic-resolution images of materials using cycle analysis. Advanced Structural and Chemical Imaging, 2020, 6, .	4.0	11
126	Mesoscopic theory of defect orderingâ€“disordering transitions in thin oxide films. Scientific Reports, 2020, 10, 22377.	3.3	0

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127	Bayesian Microscopy: Model Selection for Extracting Weak Nonlinearities from Scanning Probe Microscopy Data. Microscopy and Microanalysis, 2020, 26, 2126-2127.	0.4	0
128	Spectral Map Reconstruction Using Pan-Sharpening Algorithm: Enhancing Chemical Imaging with AFM-IR. Microscopy and Microanalysis, 2019, 25, 1024-1025.	0.4	2
129	Multi-Model Imaging of Local Chemistry and Ferroic Properties of Hybrid Organic-Inorganic Perovskites. Microscopy and Microanalysis, 2019, 25, 2076-2077.	0.4	3
130	A STEM-based Path Towards Atomic-scale Silicon-based Devices. Microscopy and Microanalysis, 2019, 25, 2290-2291.	0.4	0
131	Toward Electrochemical Studies on the Nanometer and Atomic Scales: Progress, Challenges, and Opportunities. ACS Nano, 2019, 13, 9735-9780.	14.6	32
132	Building ferroelectric from the bottom up: The machine learning analysis of the atomic-scale ferroelectric distortions. Applied Physics Letters, 2019, 115, .	3.3	20
133	Statistical Physics-based Framework and Bayesian Inference for Model Selection and Uncertainty Quantification. Microscopy and Microanalysis, 2019, 25, 130-131.	0.4	3
134	Non-conventional mechanism of ferroelectric fatigue via cation migration. Nature Communications, 2019, 10, 3064.	12.8	23
135	Lab on a beamâ€"Big data and artificial intelligence in scanning transmission electron microscopy. MRS Bulletin, 2019, 44, 565-575.	3.5	24
136	Materials science in the artificial intelligence age: high-throughput library generation, machine learning, and a pathway from correlations to the underpinning physics. MRS Communications, 2019, 9, 821-838.	1.8	109
137	Ferromagnetic-like behavior of Bi0.9La0.1FeO3â€“KBr nanocomposites. Scientific Reports, 2019, 9, 10417.	3.3	10
138	Revealing ferroelectric switching character using deep recurrent neural networks. Nature Communications, 2019, 10, 4809.	12.8	34
139	Spatially Resolved Carrier Dynamics at MAPbBr₃ Single Crystalâ€“Electrode Interface. ACS Applied Materials & Interfaces, 2019, 11, 41551-41560.	8.0	23
140	Ferroic twin domains in metal halide perovskites. MRS Advances, 2019, 4, 2817-2830.	0.9	7
141	From Control of the Electron Beam to Control of Single Atoms. Microscopy and Microanalysis, 2019, 25, 1678-1679.	0.4	0
142	The ORNL Lectures on Scanning Probe Microscopy, Part 1: Piezoresponse Force Microscopy and Spectroscopy of Ferroelectrics, Energy Materials, and Biological Systems. Microscopy Today, 2019, 27, 12-16.	0.3	0
143	The ORNL Lectures on Scanning Probe Microscopy, Part 2: The Force Dimension: Electronic and Ionic Transport Measurements via Kelvin Probe Force Microscopy. Microscopy Today, 2019, 27, 18-23.	0.3	0
144	Lightâ€Ferroic Interaction in Hybrid Organicâ€“Inorganic Perovskites. Advanced Optical Materials, 2019, 7, 1901451.	7.3	24

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145	A self-driving microscope and the Atomic Forge. MRS Bulletin, 2019, 44, 669-670.	3.5	17
146	Unsupervised Machine Learning to Distill Structural-Property Insights from 4D-STEM. Microscopy and Microanalysis, 2019, 25, 12-13.	0.4	0
147	Structure retrieval from four-dimensional scanning transmission electron microscopy: Statistical analysis of potential pitfalls in high-dimensional data. Physical Review E, 2019, 100, 023308.	2.1	2
148	Competing phases in epitaxial vanadium dioxide at nanoscale. APL Materials, 2019, 7, .	5.1	8
149	Building and exploring libraries of atomic defects in graphene: Scanning transmission electron and scanning tunneling microscopy study. Science Advances, 2019, 5, eaaw8989.	10.3	70
150	Towards Atomic Scale Quantum Structure Fabrication in 2D Materials. Microscopy and Microanalysis, 2019, 25, 940-941.	0.4	0
151	Ferroelectric domain engineering of lithium niobate single crystal confined in glass. MRS Communications, 2019, 9, 334-339.	1.8	9
152	Materials informatics: From the atomic-level to the continuum. Acta Materialia, 2019, 168, 473-510.	7.9	108
153	Intrinsic structural instabilities of domain walls driven by gradient coupling: Meandering antiferrodistortive-ferroelectric domain walls inBiFeO3. Physical Review B, 2019, 99, .	3.2	22
154	Deep learning analysis of defect and phase evolution during electron beam-induced transformations in WS2. Npj Computational Materials, 2019, 5, .	8.7	113
155	Atom-by-atom fabrication with electron beams. Nature Reviews Materials, 2019, 4, 497-507.	48.7	73
156	Building a free-energy functional from atomically resolved imaging: Atomic-scale phenomena in La-doped <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>BiFe</mml:mi><mml:msub><mml:m mathvariant="normal">O</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2019, 99, .	8.2	11
157	Application of pan-sharpening algorithm for correlative multimodal imaging using AFM-IR. Npj Computational Materials, 2019, 5, .	8.7	9
158	Deconvolving distribution of relaxation times, resistances and inductance from electrochemical impedance spectroscopy via statistical model selection: Exploiting structural-sparsity regularization and data-driven parameter tuning. Electrochimica Acta, 2019, 313, 570-583.	5.2	68
159	Polarization-dependent local conductivity and activation energy in KTiOPO4. Applied Physics Letters, 2019, 114, .	3.3	3
160	Exact, approximate and asymptotic solutions of the Kleinâ€"Gordon integral equation. Journal of Engineering Mathematics, 2019, 115, 141-156.	1.2	3
161	Deep neural networks for understanding noisy data applied to physical property extraction in scanning probe microscopy. Npj Computational Materials, 2019, 5, .	8.7	43
162	Environmental Gating and Galvanic Effects in Single Crystals of Organicâ€"Inorganic Halide Perovskites. ACS Applied Materials & Interfaces, 2019, 11, 14722-14733.	8.0	14

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163	Time-Resolved Electrical Scanning Probe Microscopy of Layered Perovskites Reveals Spatial Variations in Photoinduced Ionic and Electronic Carrier Motion. ACS Nano, 2019, 13, 2812-2821.	14.6	38
164	Materials and Devices with Probes and Beams: Down to the Atomic Level and Back Up. Advanced Functional Materials, 2019, 29, 1908267.	14.9	3
165	Atomic Mechanisms for the Si Atom Dynamics in Graphene: Chemical Transformations at the Edge and in the Bulk. Advanced Functional Materials, 2019, 29, 1904480.	14.9	25
166	Reply to: On the ferroelectricity of CH3NH3PbI3 perovskites. Nature Materials, 2019, 18, 1051-1053.	27.5	21
167	Learning from Imperfections: Predicting Structure and Thermodynamics from Atomic Imaging of Fluctuations. ACS Nano, 2019, 13, 718-727.	14.6	24
168	Manifold learning of four-dimensional scanning transmission electron microscopy. Npj Computational Materials, 2019, 5, .	8.7	37
169	Giant negative electrostriction and dielectric tunability in a van der Waals layered ferroelectric. Physical Review Materials, 2019, 3, .	2.4	47
170	Nanoscale Transport Imaging of Active Lateral Devices: Static and Frequency Dependent Modes. Springer Series in Surface Sciences, 2018, , 251-329.	0.3	3
171	Direct atomic fabrication and dopant positioning in Si using electron beams with active real-time image-based feedback. Nanotechnology, 2018, 29, 255303.	2.6	46
172	Reconstructing phase diagrams from local measurements via Gaussian processes: mapping the temperature-composition space to confidence. Npj Computational Materials, 2018, 4, .	8.7	15
173	Dynamic mechanical control of local vacancies in NiO thin films. Nanotechnology, 2018, 29, 275709.	2.6	8
174	Subtractive fabrication of ferroelectric thin films with precisely controlled thickness. Nanotechnology, 2018, 29, 155302.	2.6	7
175	Ultrafast current imaging by Bayesian inversion. Nature Communications, 2018, 9, 513.	12.8	14
176	Chemical Phenomena of Atomic Force Microscopy Scanning. Analytical Chemistry, 2018, 90, 3475-3481.	6.5	20
177	Photothermoelastic contrast in nanoscale infrared spectroscopy. Applied Physics Letters, 2018, 112, 033105.	3.3	8
178	Exploring Anomalous Polarization Dynamics in Organometallic Halide Perovskites. Advanced Materials, 2018, 30, 1705298.	21.0	44
179	Surface-screening mechanisms in ferroelectric thin films and their effect on polarization dynamics and domain structures. Reports on Progress in Physics, 2018, 81, 036502.	20.1	129
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