Sergei V. Kalinin

List of Publications by Year in Descending Order

790 papers	32,877 citations	89 h-index	144 g-index
823 ext. papers	36,411 ext. citations	8.2 avg, IF	7.4 L-index

#	Paper	IF	Citations
790	Physics makes the difference: Bayesian optimization and active learning via augmented Gaussian process. *Machine Learning: Science and Technology*, **2022**, 3, 015022	5.1	2
789	Building an Integrated Ecosystem of Computational and Observational Facilities to Accelerate Scientific Discovery. *Communications in Computer and Information Science*, **2022**, 58-75	0.3	1
788	Machine learning in scanning transmission electron microscopy. *Nature Reviews Methods Primers*, **2022**, 2,		5
787	Hypothesis learning in automated experiment: application to combinatorial materials libraries.. *Advanced Materials*, **2022**, e2201345	24	3
786	Tunable Microwave Conductance of Nanodomains in Ferroelectric PbZr 0.2 Ti 0.8 O 3 Thin Film. *Advanced Electronic Materials*, **2022**, 8, 2100952	6.4	0
785	Automated Experiment in 4D-STEM: Exploring Emergent Physics and Structural Behaviors.. *ACS Nano*, **2022**,	16.7	3
784	Exploring leakage in dielectric films via automated experiments in scanning probe microscopy. *Applied Physics Letters*, **2022**, 120, 182903	3.4	1
783	Highly enhanced ferroelectricity in HfO-based ferroelectric thin film by light ion bombardment.. *Science*, **2022**, 376, 731-738	33.3	6
782	Defect detection in atomic-resolution images via unsupervised learning with translational invariance. *Npj Computational Materials*, **2021**, 7,	10.9	3
781	Tracking atomic structure evolution during directed electron beam induced Si-atom motion in graphene via deep machine learning. *Nanotechnology*, **2021**, 32, 035703	3.4	4
780	Multi-objective Bayesian optimization of ferroelectric materials with interfacial control for memory and energy storage applications. *Journal of Applied Physics*, **2021**, 130, 204102	2.5	0
779	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	16.4	4
778	Sculpting the Plasmonic Responses of Nanoparticles by Directed Electron Beam Irradiation. *Small*, **2021**, e2105099	11	1
777	Deep Bayesian local crystallography. *Npj Computational Materials*, **2021**, 7,	10.9	5
776	Oxygen Vacancy Injection as a Pathway to Enhancing Electromechanical Response in Ferroelectrics. *Advanced Materials*, **2021**, e2106426	24	1
775	Disentangling ferroelectric domain wall geometries and pathways in dynamic piezoresponse force microscopy via unsupervised machine learning. *Nanotechnology*, **2021**, 33,	3.4	5
774	Machine learning for high-throughput experimental exploration of metal halide perovskites. *Joule*, **2021**,	27.8	7

773	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	6.3	5
772	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,	4.3	1
771	Thermodynamics of order and randomness in dopant distributions inferred from atomically resolved imaging. *Npj Computational Materials*, **2021**, 7,	10.9	1
770	Investigating phase transitions from local crystallographic analysis based on statistical learning of atomic environments in 2D MoS2-ReS2. *Applied Physics Reviews*, **2021**, 8, 011409	17.3	1
769	Exploring order parameters and dynamic processes in disordered systems via variational autoencoders. *Science Advances*, **2021**, 7,	14.3	11
768	Disentangling Rotational Dynamics and Ordering Transitions in a System of Self-Organizing Protein Nanorods Rotationally Invariant Latent Representations. *ACS Nano*, **2021**, 15, 6471-6480	16.7	7
767	Separating Physically Distinct Mechanisms in Complex Infrared Plasmonic Nanostructures via Machine Learning Enhanced Electron Energy Loss Spectroscopy. *Advanced Optical Materials*, **2021**, 9, 2001808	8.1	7
766	Predictability of Localized Plasmonic Responses in Nanoparticle Assemblies. *Small*, **2021**, 17, e2100181	11	7
765	Correlation Between Corrugation-Induced Flexoelectric Polarization and Conductivity of Low-Dimensional Transition Metal Dichalcogenides. *Physical Review Applied*, **2021**, 15,	4.3	1
764	Role of Decomposition Product Ions in Hysteretic Behavior of Metal Halide Perovskite. *ACS Nano*, **2021**, 15, 9017-9026	16.7	3
763	Ferroelectric and Charge Transport Properties in Strain-Engineered Two-Dimensional Lead Iodide Perovskites. *Chemistry of Materials*, **2021**, 33, 4077-4088	9.6	2
762	Probing atomic-scale symmetry breaking by rotationally invariant machine learning of multidimensional electron scattering. *Npj Computational Materials*, **2021**, 7,	10.9	6
761	Exploring Responses of Contact Kelvin Probe Force Microscopy in Triple-Cation Double-Halide Perovskites. *Journal of Physical Chemistry C*, **2021**, 125, 12355-12365	3.8	0
760	Revealing the Chemical Bonding in Adatom Arrays via Machine Learning of Hyperspectral Scanning Tunneling Spectroscopy Data. *ACS Nano*, **2021**,	16.7	4
759	Bayesian Learning of Adatom Interactions from Atomically Resolved Imaging Data. *ACS Nano*, **2021**, 15, 9649-9657	16.7	2
758	Ferroic Halide Perovskite Optoelectronics. *Advanced Functional Materials*, **2021**, 31, 2102793	15.6	6
757	Exploring Transport Behavior in Hybrid Perovskites Solar Cells via Machine Learning Analysis of Environmental-Dependent Impedance Spectroscopy. *Advanced Science*, **2021**, 8, e2002510	13.6	7
756	Electron beam modification of plasmonic responses of nanoparticles. *Microscopy and Microanalysis*, **2021**, 27, 3066-3068	0.5	

755	Automated Experiment in SPM: Bayesian Optimization for efficient searching of parameter space to maximize functional response. *Microscopy and Microanalysis*, **2021**, 27, 470-471	0.5	1
754	Building an edge computing infrastructure for rapid multi-dimensional electron microscopy. *Microscopy and Microanalysis*, **2021**, 27, 56-57	0.5	0
753	Ensemble learning-iterative training machine learning for uncertainty quantification and automated experiment in atom-resolved microscopy. *Npj Computational Materials*, **2021**, 7,	10.9	4
752	Atomic-scale Feedback-controlled Electron Beam Fabrication of 2D Materials. *Microscopy and Microanalysis*, **2021**, 27, 3072-3073	0.5	
751	Autonomous Experiments in Scanning Probe Microscopy and Spectroscopy: Choosing Where to Explore Polarization Dynamics in Ferroelectrics. *ACS Nano*, **2021**,	16.7	8
750	Automated and Autonomous Experiments in Electron and Scanning Probe Microscopy. *ACS Nano*, **2021**,	16.7	11
749	Automatic detection of crystallographic defects in STEM images by unsupervised learning with translational invariance. *Microscopy and Microanalysis*, **2021**, 27, 1460-1462	0.5	1
748	Ferroelastic Nanodomain-mediated Mechanical Switching of Ferroelectricity in Thick Epitaxial Films. *Nano Letters*, **2021**, 21, 445-452	11.5	2
747	Probing potential energy landscapes via electron-beam-induced single atom dynamics. *Acta Materialia*, **2021**, 203, 116508	8.4	2
746	Direct Observation of Photoinduced Ion Migration in Lead Halide Perovskites. *Advanced Functional Materials*, **2021**, 31, 2008777	15.6	17
745	Quantifying the Dynamics of Protein Self-Organization Using Deep Learning Analysis of Atomic Force Microscopy Data. *Nano Letters*, **2021**, 21, 158-165	11.5	7
744	Towards data-driven next-generation transmission electron microscopy. *Nature Materials*, **2021**, 20, 274-279	27	48
743	Alignment of Au nanorods along designed protein nanofibers studied with automated image analysis. *Soft Matter*, **2021**, 17, 6109-6115	3.6	3
742	Toward Decoding the Relationship between Domain Structure and Functionality in Ferroelectrics via Hidden Latent Variables. *ACS Applied Materials & Interfaces*, **2021**, 13, 1693-1703	9.5	14
741	Off-the-shelf deep learning is not enough, and requires parsimony, Bayesianity, and causality. *Npj Computational Materials*, **2021**, 7,	10.9	4
740	Reducing Time to Discovery: Materials and Molecular Modeling, Imaging, Informatics, and Integration. *ACS Nano*, **2021**, 15, 3971-3995	16.7	11
739	Computational scanning tunneling microscope image database. *Scientific Data*, **2021**, 8, 57	8.2	4
738	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, 011403	17.3	2

737	A combined theoretical and experimental study of the phase coexistence and morphotropic boundaries in ferroelectric-antiferroelectric-antiferrodistortive multiferroics. *Acta Materialia*, **2021**, 213, 116939	8.4	1
736	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	5.1	0
735	Direct mapping of polarization fields from STEM images: A Deep Learning based exploration of ferroelectrics. *Microscopy and Microanalysis*, **2021**, 27, 2990-2992	0.5	
734	Electron Beam Control of Dopants in 2D and 3D Materials. *Microscopy and Microanalysis*, **2021**, 27, 2150-2153	0.5	
733	Stress-induced phase transitions in nanoscale CuInP2S6. *Physical Review B*, **2021**, 104,	3.3	1
732	Deep learning ferroelectric polarization distributions from STEM data via with and without atom finding. *Npj Computational Materials*, **2021**, 7,	10.9	1
731	Disentangling Ferroelectric Wall Dynamics and Identification of Pinning Mechanisms via Deep Learning. *Advanced Materials*, **2021**, 33, e2103680	24	7
730	Gaussian process analysis of electron energy loss spectroscopy data: multivariate reconstruction and kernel control. *Npj Computational Materials*, **2021**, 7,	10.9	2
729	Probing polarization dynamics at specific domain configurations: Computer-vision based automated experiment in piezoresponse force microscopy. *Applied Physics Letters*, **2021**, 119, 132902	3.4	3
728	Probing Metastable Domain Dynamics Automated Experimentation in Piezoresponse Force Microscopy. *ACS Nano*, **2021**, 15, 15096-15103	16.7	2
727	Identification and correction of temporal and spatial distortions in scanning transmission electron microscopy. *Ultramicroscopy*, **2021**, 229, 113337	3.1	2
726	Unraveling the hysteretic behavior at double cations-double halides perovskite - electrode interfaces. *Nano Energy*, **2021**, 89, 106428	17.1	3
725	Distilling nanoscale heterogeneity of amorphous silicon using tip-enhanced Raman spectroscopy (TERS) via multiresolution manifold learning. *Nature Communications*, **2021**, 12, 578	17.4	7
724	Piezoresponse amplitude and phase quantified for electromechanical characterization. *Journal of Applied Physics*, **2020**, 128, 171105	2.5	10
723	Phenomenological description of bright domain walls in ferroelectric-antiferroelectric layered chalcogenides. *Physical Review B*, **2020**, 102,	3.3	5
722	Accurately Imaging, Tracking and Moving Single Atoms. *Microscopy and Microanalysis*, **2020**, 26, 2556-2557	0.5	
721	Phase diagrams of single-layer two-dimensional transition metal dichalcogenides: Landau theory. *Physical Review B*, **2020**, 101,	3.3	5
720	Room temperature multiferroicity and magnetodielectric coupling in 0□ composite thin films. *Journal of Applied Physics*, **2020**, 127, 194104	2.5	10

719	Reconstruction of the interatomic forces from dynamic scanning transmission electron microscopy data. *Journal of Applied Physics*, **2020**, 127, 224301	2.5	1
718	Direct matter disassembly via electron beam control: electron-beam-mediated catalytic etching of graphene by nanoparticles. *Nanotechnology*, **2020**, 31, 245303	3.4	3
717	Correlation of Spatiotemporal Dynamics of Polarization and Charge Transport in Blended Hybrid Organic-Inorganic Perovskites on Macro- and Nanoscales. *ACS Applied Materials & Interfaces*, **2020**, 12, 15380-15388	9.5	4
716	Alignment of Polarization against an Electric Field in van der Waals Ferroelectrics. *Physical Review Applied*, **2020**, 13,	4.3	15
715	Ordering with a twist. *Nature Nanotechnology*, **2020**, 15, 515-516	28.7	2
714	Guided search for desired functional responses via Bayesian optimization of generative model: Hysteresis loop shape engineering in ferroelectrics. *Journal of Applied Physics*, **2020**, 128, 024102	2.5	4
713	Reconstruction of effective potential from statistical analysis of dynamic trajectories. *AIP Advances*, **2020**, 10, 065034	1.5	2
712	Strain-polarization coupling mechanism of enhanced conductivity at the grain boundaries in BiFeO3thin films. *Applied Materials Today*, **2020**, 20, 100740	6.6	4
711	Exploration of Electrochemical Reactions at Organic□Inorganic Halide Perovskite Interfaces via Machine Learning in In Situ Time-of-Flight Secondary Ion Mass Spectrometry. *Advanced Functional Materials*, **2020**, 30, 2001995	15.6	15
710	Machine learning-based multidomain processing for texture-based image segmentation and analysis. *Applied Physics Letters*, **2020**, 116, 044103	3.4	12
709	High-Pressure, High-Temperature Synthesis and Characterization of Polar and Magnetic LuCrWO. *Inorganic Chemistry*, **2020**, 59, 3579-3584	5.1	3
708	Strain□hemical Gradient and Polarization in Metal Halide Perovskites. *Advanced Electronic Materials*, **2020**, 6, 1901235	6.4	14
707	Electron-beam introduction of heteroatomic Pt□i structures in graphene. *Carbon*, **2020**, 161, 750-757	10.4	13
706	Variable voltage electron microscopy: Toward atom-by-atom fabrication in 2D materials. *Ultramicroscopy*, **2020**, 211, 112949	3.1	11
705	Imaging mechanism for hyperspectral scanning probe microscopy via Gaussian process modelling. *Npj Computational Materials*, **2020**, 6,	10.9	9
704	Estimating Preisach Density via Subset Selection. *IEEE Access*, **2020**, 8, 61767-61774	3.5	1
703	Mesoscopic structure of mixed type domain walls in multiaxial ferroelectrics. *Physical Review Materials*, **2020**, 4,	3.2	2
702	Detection of defects in atomic-resolution images of materials using cycle analysis. *Advanced Structural and Chemical Imaging*, **2020**, 6,	3.9	10

701	Bayesian Microscopy: Model Selection for Extracting Weak Nonlinearities from Scanning Probe Microscopy Data. *Microscopy and Microanalysis*, **2020**, 26, 2126-2127	0.5	
700	Mesoscopic theory of defect ordering-disordering transitions in thin oxide films. *Scientific Reports*, **2020**, 10, 22377	4.9	
699	Exploration of lattice Hamiltonians for functional and structural discovery via Gaussian process-based exploration-exploitation. *Journal of Applied Physics*, **2020**, 128, 164304	2.5	4
698	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	1
697	Deep learning of interface structures from simulated 4D STEM data: cation intermixing vs. roughening. *Machine Learning: Science and Technology*, **2020**, 1, 04LT01	5.1	3
696	Possible electrochemical origin of ferroelectricity in HfO2 thin films. *Journal of Alloys and Compounds*, **2020**, 830, 153628	5.7	36
695	Tunable quadruple-well ferroelectric van der Waals crystals. *Nature Materials*, **2020**, 19, 43-48	27	61
694	Statistical learning of governing equations of dynamics from in-situ electron microscopy imaging data. *Materials and Design*, **2020**, 195, 108973	8.1	5
693	Chemical Robotics Enabled Exploration of Stability in Multicomponent Lead Halide Perovskites via Machine Learning. *ACS Energy Letters*, **2020**, 5, 3426-3436	20.1	24
692	Piezoelectric domain walls in van der Waals antiferroelectric CuInPSe. *Nature Communications*, **2020**, 11, 3623	17.4	20
691	The joint automated repository for various integrated simulations (JARVIS) for data-driven materials design. *Npj Computational Materials*, **2020**, 6,	10.9	51
690	Dynamic Manipulation in Piezoresponse Force Microscopy: Creating Nonequilibrium Phases with Large Electromechanical Response. *ACS Nano*, **2020**, 14, 10569-10577	16.7	7
689	Fast Scanning Probe Microscopy via Machine Learning: Non-Rectangular Scans with Compressed Sensing and Gaussian Process Optimization. *Small*, **2020**, 16, e2002878	11	19
688	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	3
687	Exploring phase transitions and magnetoelectric coupling of epitaxial asymmetric multilayer heterostructures. *Journal of Materials Chemistry C*, **2020**, 8, 12113-12122	7.1	4
686	Melting of spatially modulated phases at domain wall/surface junctions in antiferrodistortive multiferroics. *Physical Review B*, **2020**, 102,	3.3	5
685	Tensor factorization for elucidating mechanisms of piezoresponse relaxation via dynamic Piezoresponse Force Spectroscopy. *Npj Computational Materials*, **2020**, 6,	10.9	1
684	Causal analysis of competing atomistic mechanisms in ferroelectric materials from high-resolution scanning transmission electron microscopy data. *Npj Computational Materials*, **2020**, 6,	10.9	10

683	Flexoinduced ferroelectricity in low-dimensional transition metal dichalcogenides. *Physical Review B*, **2020**, 102,	3.3	5
682	Induced ferroelectric phases in SrTiO by a nanocomposite approach. *Nanoscale*, **2020**, 12, 18193-18199	7.7	6
681	Hysteretic Ion Migration and Remanent Field in Metal Halide Perovskites. *Advanced Science*, **2020**, 7, 2001176	13.6	14
680	Bayesian inference in band excitation scanning probe microscopy for optimal dynamic model selection in imaging. *Journal of Applied Physics*, **2020**, 128, 054105	2.5	4
679	Operando Imaging of Ion Migration in Metal Halide Perovskites. *Microscopy and Microanalysis*, **2020**, 26, 2046-2048	0.5	
678	Exploring physics of ferroelectric domain walls via Bayesian analysis of atomically resolved STEM data. *Nature Communications*, **2020**, 11, 6361	17.4	7
677	Self-Assembled Room Temperature Multiferroic BiFeO3-LiFe5O8 Nanocomposites. *Advanced Functional Materials*, **2020**, 30, 1906849	15.6	10
676	Light-Ferroic Interaction in Hybrid Organic–Inorganic Perovskites. *Advanced Optical Materials*, **2019**, 7, 1901451	8.1	20
675	A self-driving microscope and the Atomic Forge. *MRS Bulletin*, **2019**, 44, 669-670	3.2	9
674	Unsupervised Machine Learning to Distill Structural-Property Insights from 4D-STEM. *Microscopy and Microanalysis*, **2019**, 25, 12-13	0.5	
673	Structure retrieval from four-dimensional scanning transmission electron microscopy: Statistical analysis of potential pitfalls in high-dimensional data. *Physical Review E*, **2019**, 100, 023308	2.4	1
672	Competing phases in epitaxial vanadium dioxide at nanoscale. *APL Materials*, **2019**, 7, 081127	5.7	3
671	Building and exploring libraries of atomic defects in graphene: Scanning transmission electron and scanning tunneling microscopy study. *Science Advances*, **2019**, 5, eaaw8989	14.3	41
670	Towards Atomic Scale Quantum Structure Fabrication in 2D Materials. *Microscopy and Microanalysis*, **2019**, 25, 940-941	0.5	
669	Ferroelectric domain engineering of lithium niobate single crystal confined in glass. *MRS Communications*, **2019**, 9, 334-339	2.7	5
668	Materials informatics: From the atomic-level to the continuum. *Acta Materialia*, **2019**, 168, 473-510	8.4	64
667	Intrinsic structural instabilities of domain walls driven by gradient coupling: Meandering antiferrodistortive-ferroelectric domain walls in BiFeO3. *Physical Review B*, **2019**, 99,	3.3	18
666	Deep learning analysis of defect and phase evolution during electron beam-induced transformations in WS2. *Npj Computational Materials*, **2019**, 5,	10.9	74

665	Atom-by-atom fabrication with electron beams. *Nature Reviews Materials*, **2019**, 4, 497-507	73.3	42
664	Building a free-energy functional from atomically resolved imaging: Atomic-scale phenomena in La-doped BiFeO3. *Physical Review B*, **2019**, 99,	3.3	9
663	Application of pan-sharpening algorithm for correlative multimodal imaging using AFM-IR. *Npj Computational Materials*, **2019**, 5,	10.9	3
662	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	6.7	36
661	Polarization-dependent local conductivity and activation energy in KTiOPO4. *Applied Physics Letters* , **2019**, 114, 192901	3.4	3
660	Exact, approximate and asymptotic solutions of the Klein□Gordon integral equation. *Journal of Engineering Mathematics*, **2019**, 115, 141-156	1.2	2
659	Deep neural networks for understanding noisy data applied to physical property extraction in scanning probe microscopy. *Npj Computational Materials*, **2019**, 5,	10.9	28
658	Environmental Gating and Galvanic Effects in Single Crystals of Organic-Inorganic Halide Perovskites. *ACS Applied Materials & Interfaces*, **2019**, 11, 14722-14733	9.5	10
657	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	16.7	30
656	Spectral Map Reconstruction Using Pan-Sharpening Algorithm: Enhancing Chemical Imaging with AFM-IR. *Microscopy and Microanalysis*, **2019**, 25, 1024-1025	0.5	0
655	Multi-Model Imaging of Local Chemistry and Ferroic Properties of Hybrid Organic-Inorganic Perovskites. *Microscopy and Microanalysis*, **2019**, 25, 2076-2077	0.5	3
654	A STEM-based Path Towards Atomic-scale Silicon-based Devices. *Microscopy and Microanalysis*, **2019** , 25, 2290-2291	0.5	
653	Toward Electrochemical Studies on the Nanometer and Atomic Scales: Progress, Challenges, and Opportunities. *ACS Nano*, **2019**, 13, 9735-9780	16.7	18
652	Building ferroelectric from the bottom up: The machine learning analysis of the atomic-scale ferroelectric distortions. *Applied Physics Letters*, **2019**, 115, 052902	3.4	13
651	Statistical Physics-based Framework and Bayesian Inference for Model Selection and Uncertainty Quantification. *Microscopy and Microanalysis*, **2019**, 25, 130-131	0.5	2
650	Non-conventional mechanism of ferroelectric fatigue via cation migration. *Nature Communications*, **2019**, 10, 3064	17.4	16
649	Lab on a beam□Big data and artificial intelligence in scanning transmission electron microscopy. *MRS Bulletin*, **2019**, 44, 565-575	3.2	15
648	Materials Science in the AI age: high-throughput library generation, machine learning and a pathway from correlations to the underpinning physics. *MRS Communications*, **2019**, 9, 821	2.7	56

647	Ferromagnetic-like behavior of BiLaFeO-KBr nanocomposites. *Scientific Reports*, **2019**, 9, 10417	4.9	7
646	Revealing ferroelectric switching character using deep recurrent neural networks. *Nature Communications*, **2019**, 10, 4809	17.4	21
645	Spatially Resolved Carrier Dynamics at MAPbBr Single Crystal-Electrode Interface. *ACS Applied Materials & Interfaces*, **2019**, 11, 41551-41560	9.5	13
644	Ferroic twin domains in metal halide perovskites. *MRS Advances*, **2019**, 4, 2817-2830	0.7	5
643	From Control of the Electron Beam to Control of Single Atoms. *Microscopy and Microanalysis*, **2019**, 25, 1678-1679	0.5	
642	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	0.4	
641	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	0.4	
640	Giant negative electrostriction and dielectric tunability in a van der Waals layered ferroelectric. *Physical Review Materials*, **2019**, 3,	3.2	25
639	Atomic Mechanisms for the Si Atom Dynamics in Graphene: Chemical Transformations at the Edge and in the Bulk. *Advanced Functional Materials*, **2019**, 29, 1904480	15.6	17
638	Reply to: On the ferroelectricity of CHNHPbI perovskites. *Nature Materials*, **2019**, 18, 1051-1053	27	21
637	Learning from Imperfections: Predicting Structure and Thermodynamics from Atomic Imaging of Fluctuations. *ACS Nano*, **2019**, 13, 718-727	16.7	19
636	Manifold learning of four-dimensional scanning transmission electron microscopy. *Npj Computational Materials*, **2019**, 5,	10.9	19
635	Nanoscale Transport Imaging of Active Lateral Devices: Static and Frequency Dependent Modes. *Springer Series in Surface Sciences*, **2018**, 251-329	0.4	3
634	Direct atomic fabrication and dopant positioning in Si using electron beams with active real-time image-based feedback. *Nanotechnology*, **2018**, 29, 255303	3.4	31
633	Reconstructing phase diagrams from local measurements via Gaussian processes: mapping the temperature-composition space to confidence. *Npj Computational Materials*, **2018**, 4,	10.9	11
632	Dynamic mechanical control of local vacancies in NiO thin films. *Nanotechnology*, **2018**, 29, 275709	3.4	7
631	Subtractive fabrication of ferroelectric thin films with precisely controlled thickness. *Nanotechnology*, **2018**, 29, 155302	3.4	6
630	Ultrafast current imaging by Bayesian inversion. *Nature Communications*, **2018**, 9, 513	17.4	13

629	Chemical Phenomena of Atomic Force Microscopy Scanning. *Analytical Chemistry*, **2018**, 90, 3475-3481	7.8	16
628	Photothermoelastic contrast in nanoscale infrared spectroscopy. *Applied Physics Letters*, **2018**, 112, 033105	3.4	6
627	Exploring Anomalous Polarization Dynamics in Organometallic Halide Perovskites. *Advanced Materials*, **2018**, 30, 1705298	24	38
626	Surface-screening mechanisms in ferroelectric thin films and their effect on polarization dynamics and domain structures. *Reports on Progress in Physics*, **2018**, 81, 036502	14.4	93
625	Mitigating e-beam-induced hydrocarbon deposition on graphene for atomic-scale scanning transmission electron microscopy studies. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2018**, 36, 011801	1.3	20
624	Defect-driven flexochemical coupling in thin ferroelectric films. *Physical Review B*, **2018**, 97,	3.3	31
623	YCrWO6: Polar and Magnetic Oxide with CaTa2O6-Related Structure. *Chemistry of Materials*, **2018**, 30, 1045-1054	9.6	14
622	Feature extraction via similarity search: application to atom finding and denoising in electron and scanning probe microscopy imaging. *Advanced Structural and Chemical Imaging*, **2018**, 4, 3	3.9	22
621	Nontrivial temperature behavior of the carrier concentration in graphene on ferroelectric substrate with domain walls. *Acta Materialia*, **2018**, 155, 302-317	8.4	12
620	Machine learning-enabled identification of material phase transitions based on experimental data: Exploring collective dynamics in ferroelectric relaxors. *Science Advances*, **2018**, 4, eaap8672	14.3	37
619	Data mining for better material synthesis: The case of pulsed laser deposition of complex oxides. *Journal of Applied Physics*, **2018**, 123, 115303	2.5	18
618	Dynamic Modes in Kelvin Probe Force Microscopy: Band Excitation and G-Mode. *Springer Series in Surface Sciences*, **2018**, 49-99	0.4	3
617	Surface Chemistry Controls Anomalous Ferroelectric Behavior in Lithium Niobate. *ACS Applied Materials & Interfaces*, **2018**, 10, 29153-29160	9.5	13
616	Labyrinthine domains in ferroelectric nanoparticles: Manifestation of a gradient-induced morphological transition. *Physical Review B*, **2018**, 98,	3.3	24
615	Locally Controlled Cu-Ion Transport in Layered Ferroelectric CuInPS. *ACS Applied Materials & Interfaces*, **2018**, 10, 27188-27194	9.5	35
614	Towards nanoscale electrical measurements in liquid by advanced KPFM techniques: a review. *Reports on Progress in Physics*, **2018**, 81, 086101	14.4	45
613	E-beam manipulation of Si atoms on graphene edges with an aberration-corrected scanning transmission electron microscope. *Nano Research*, **2018**, 11, 6217-6226	10	17
612	Deep data analysis via physically constrained linear unmixing: universal framework, domain examples, and a community-wide platform. *Advanced Structural and Chemical Imaging*, **2018**, 4, 6	3.9	27

611	Atom-by-Atom Assembly in Aberration Corrected STEM and the Role of Chemistry at the Surface of Graphene. *Microscopy and Microanalysis*, **2018**, 24, 326-327	0.5	
610	Automated Atom-by-Atom Assembly of Structures in Graphene: The Rise of STEM for Atomic Scale Control. *Microscopy and Microanalysis*, **2018**, 24, 1594-1595	0.5	
609	Theory-assisted determination of nano-rippling and impurities in atomic resolution images of angle-mismatched bilayer graphene. *2D Materials*, **2018**, 5, 041008	5.9	3
608	Building Structures Atom by Atom via Electron Beam Manipulation. *Small*, **2018**, 14, e1801771	11	55
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