Andrew R Lupini

List of Publications by Year in descending order

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66911 47006 6,401 142 47 citations h-index papers

78 g-index 146 146 146 9298 docs citations times ranked citing authors all docs

#	Article	IF	CITATIONS
1	Sculpting the Plasmonic Responses of Nanoparticles by Directed Electron Beam Irradiation. Small, 2022, 18, e2105099.	10.0	5
2	Machine learning in scanning transmission electron microscopy. Nature Reviews Methods Primers, 2022, 2, .	21.2	59
3	Mapping Conductance and Switching Behavior of Graphene Devices In Situ. Small Methods, 2022, 6, e2101245.	8.6	7
4	Imaging Secondary Electron Emission from a Single Atomic Layer. Small Methods, 2021, 5, 2000950.	8.6	5
5	Probing atomic-scale symmetry breaking by rotationally invariant machine learning of multidimensional electron scattering. Npj Computational Materials, 2021, 7, .	8.7	15
6	Bifunctional nanoprecipitates strengthen and ductilize a medium-entropy alloy. Nature, 2021, 595, 245-249.	27.8	141
7	van der Waals Epitaxy Growth of Bi2Se3 on a Freestanding Monolayer Graphene Membrane: Implications for Layered Materials and Heterostructures. ACS Applied Nano Materials, 2021, 4, 7607-7613.	5.0	O
8	Mechanism of Electron-Beam Manipulation of Single-Dopant Atoms in Silicon. Journal of Physical Chemistry C, 2021, 125, 16041-16048.	3.1	10
9	Atomic-scale Feedback-controlled Electron Beam Fabrication of 2D Materials. Microscopy and Microanalysis, 2021, 27, 3072-3073.	0.4	O
10	Automated and Autonomous Experiments in Electron and Scanning Probe Microscopy. ACS Nano, 2021, 15, 12604-12627.	14.6	49
11	Automatic detection of crystallographic defects in STEM images by unsupervised learning with translational invariance. Microscopy and Microanalysis, 2021, 27, 1460-1462.	0.4	1
12	Electron Beam Control of Dopants in 2D and 3D Materials. Microscopy and Microanalysis, 2021, 27, 2150-2153.	0.4	0
13	Correlated oxide Dirac semimetal in the extreme quantum limit. Science Advances, 2021, 7, eabf9631.	10.3	19
14	Gaussian process analysis of electron energy loss spectroscopy data: multivariate reconstruction and kernel control. Npj Computational Materials, 2021, 7, .	8.7	6
15	Defect detection in atomic-resolution images via unsupervised learning with translational invariance. Npj Computational Materials, 2021, 7, .	8.7	11
16	Evolution of lattice defects upon Bi-doping of epitaxial Si overlayers on Si(1 0 0). Applied Surface Science, 2020, 502, 144284.	6.1	0
17	Accurately Imaging, Tracking and Moving Single Atoms. Microscopy and Microanalysis, 2020, 26, 2556-2557.	0.4	O
18	Uncovering the Mechanism for Electron-beam Manipulation of Dopants in Silicon. Microscopy and Microanalysis, 2020, 26, 2560-2561.	0.4	0

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19	Electron-beam introduction of heteroatomic Pt–Si structures in graphene. Carbon, 2020, 161, 750-757.	10.3	34
20	Variable voltage electron microscopy: Toward atom-by-atom fabrication in 2D materials. Ultramicroscopy, 2020, 211, 112949.	1.9	14
21	An Atomic-Scale Perspective of the Challenging Microstructure of YBa2Cu3O7â^'x Thin Films. , 2020, , 189-212.		2
22	Detection of defects in atomic-resolution images of materials using cycle analysis. Advanced Structural and Chemical Imaging, 2020, 6, .	4.0	11
23	A STEM-based Path Towards Atomic-scale Silicon-based Devices. Microscopy and Microanalysis, 2019, 25, 2290-2291.	0.4	0
24	Lab on a beamâ€"Big data and artificial intelligence in scanning transmission electron microscopy. MRS Bulletin, 2019, 44, 565-575.	3. 5	24
25	From Control of the Electron Beam to Control of Single Atoms. Microscopy and Microanalysis, 2019, 25, 1678-1679.	0.4	0
26	Unsupervised Machine Learning to Distill Structural-Property Insights from 4D-STEM. Microscopy and Microanalysis, 2019, 25, 12-13.	0.4	0
27	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
28	Atom-by-atom fabrication with electron beams. Nature Reviews Materials, 2019, 4, 497-507.	48.7	73
29	High-K dielectric sulfur-selenium alloys. Science Advances, 2019, 5, eaau9785.	10.3	13
30	Direct Cation Exchange in Monolayer <mml:math display="inline" xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mrow><mml:mi>MoS</mml:mi></mml:mrow><mml:mn>2<td>ıml:n8n><td>mmzimsub><!--</td--></td></td></mml:mn></mml:msub></mml:mrow></mml:math>	ım l:n8 n> <td>mmzimsub><!--</td--></td>	mm zi msub> </td
31	Hierarchical TiO ₂ :Cu ₂ O Nanostructures for Gas/Vapor Sensing and CO ₂ Sequestration. ACS Applied Materials & Sequestration and Sequestration. ACS Applied Materials & Sequestration and Sequestration.	8.0	18
32	Manifold learning of four-dimensional scanning transmission electron microscopy. Npj Computational Materials, 2019, 5, .	8.7	37
33	Temperature Measurement by a Nanoscale Electron Probe Using Energy Gain and Loss Spectroscopy. Physical Review Letters, 2018, 120, 095901.	7.8	97
34	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
35	Exploring the capabilities of monochromated electron energy loss spectroscopy in the infrared regime. Scientific Reports, 2018, 8, 5637.	3.3	67
36	Homo-endotaxial one-dimensional Si nanostructures. Nanoscale, 2018, 10, 260-267.	5.6	3

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37	Temperature Measurement by a Nanoscale Electron Probe using Energy Gain and Loss Spectroscopy. Microscopy and Microanalysis, 2018, 24, 98-99.	0.4	0
38	Towards Atomic-Scale Fabrication in Silicon. Microscopy and Microanalysis, 2018, 24, 158-159.	0.4	0
39	Towards topological spectroscopy in the electron microscope with atomic resolution. Microscopy and Microanalysis, 2018, 24, 926-927.	0.4	1
40	Pushing the limits of electron ptychography. Science, 2018, 362, 399-400.	12.6	9
41	Polarization- and wavelength-resolved near-field imaging of complex plasmonic modes in Archimedean nanospirals. Optics Letters, 2018, 43, 927.	3.3	13
42	Directed Atom-by-Atom Assembly of Dopants in Silicon. ACS Nano, 2018, 12, 5873-5879.	14.6	62
43	Atomic Manipulation on a Scanning Transmission Electron Microscope Platform using Real-Time Image Processing and Feedback. Microscopy and Microanalysis, 2018, 24, 534-535.	0.4	0
44	Automated Atom-by-Atom Assembly of Structures in Graphene: The Rise of STEM for Atomic Scale Control. Microscopy and Microanalysis, 2018, 24, 1594-1595.	0.4	0
45	Theory-assisted determination of nano-rippling and impurities in atomic resolution images of angle-mismatched bilayer graphene. 2D Materials, 2018, 5, 041008.	4.4	5
46	Direct Imaging of Low-Dimensional Nanostructures. Microscopy and Microanalysis, 2018, 24, 90-91.	0.4	0
47	<i>In Situ</i> Observation of Oxygen Vacancy Dynamics and Ordering in the Epitaxial LaCoO ₃ System. ACS Nano, 2017, 11, 6942-6949.	14.6	89
48	Precision controlled atomic resolution scanning transmission electron microscopy using spiral scan pathways. Scientific Reports, 2017, 7, 43585.	3.3	23
49	Ultra-high resolution electron microscopy. Reports on Progress in Physics, 2017, 80, 026101.	20.1	21
50	Single-atom dynamics in scanning transmission electron microscopy. MRS Bulletin, 2017, 42, 644-652.	3.5	33
51	Probing Strain-Induced Phenomena in Low Dimensionality Multiferroic Oxides. Microscopy and Microanalysis, 2017, 23, 1726-1727.	0.4	0
52	Three-Dimensional Point Defect Imaging by Large-angle Illumination STEM. Microscopy and Microanalysis, 2017, 23, 424-425.	0.4	1
53	Acquisition and Fast Analysis of Multi-Dimensional STEM Data. Microscopy and Microanalysis, 2017, 23, 168-169.	0.4	0
54	Identifying Novel Polar Distortion Modes in Engineered Magnetic Oxide Superlattices. Microscopy and Microanalysis, 2017, 23, 1590-1591.	0.4	1

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55	Movement and Imaging of Single-Atom Dopants in Silicon. Microscopy and Microanalysis, 2017, 23, 1706-1707.	0.4	O
56	Tracking BO 6 Coupling in Perovskite Superlattices to Engineer Magnetic Interface Behavior. Microscopy and Microanalysis, 2016, 22, 904-905.	0.4	0
57	Single atom visibility in STEM optical depth sectioning. Applied Physics Letters, 2016, 109, .	3.3	40
58	Fast Aberration Measurement in Multi-Dimensional STEM. Microscopy and Microanalysis, 2016, 22, 252-253.	0.4	1
59	Using Multivariate Analysis of Scanning-Rochigram Data to Reveal Material Functionality. Microscopy and Microanalysis, 2016, 22, 292-293.	0.4	2
60	Mapping Magnetic Ordering With Aberrated Electron Probes in STEM. Microscopy and Microanalysis, 2016, 22, 1676-1677.	0.4	2
61	Single Atom Imaging and Spectroscopy of Impurities in 2D Materials. Microscopy and Microanalysis, 2016, 22, 862-863.	0.4	0
62	Column-by-column observation of dislocation motion in CdTe: Dynamic scanning transmission electron microscopy. Applied Physics Letters, 2016, 109, .	3.3	6
63	Directing Matter: Toward Atomic-Scale 3D Nanofabrication. ACS Nano, 2016, 10, 5600-5618.	14.6	99
64	Combined Tilt- and Focal-Series Tomography for HAADF-STEM. Microscopy Today, 2016, 24, 26-31.	0.3	1
65	Direct-write liquid phase transformations with a scanning transmission electron microscope. Nanoscale, 2016, 8, 15581-15588.	5.6	29
66	Dynamic scan control in STEM: spiral scans. Advanced Structural and Chemical Imaging, 2016, 2, .	4.0	59
67	Polar-Graded Multiferroic SrMnO ₃ Thin Films. Nano Letters, 2016, 16, 2221-2227.	9.1	45
68	Automated and Shaped-Controlled Liquid STEM Nanolithography. Microscopy and Microanalysis, 2015, 21, 1127-1128.	0.4	0
69	Direct Observation of Plasmonic Enhancement of Emission in Ag-nanoparticle-decorated ZnO nanostructures. Microscopy and Microanalysis, 2015, 21, 2389-2390.	0.4	0
70	Probing Plasmons in Three Dimensions within Random Morphology Nanostructures. Microscopy and Microanalysis, 2015, 21, 1683-1684.	0.4	0
71	Atomicâ€Level Sculpting of Crystalline Oxides: Toward Bulk Nanofabrication with Single Atomic Plane Precision. Small, 2015, 11, 5895-5900.	10.0	73
72	Quantitative Electron Microscopy and the Application by Single Electron Signals. Microscopy and Microanalysis, 2015, 21, 1449-1450.	0.4	0

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73	Ptychographic Imaging in an Aberration Corrected STEM. Microscopy and Microanalysis, 2015, 21, 1219-1220.	0.4	4
74	STEM in 4 Dimensions: Using Multivariate Analysis of Ptychographic Data to Reveal Material Functionality. Microscopy and Microanalysis, 2015, 21, 1863-1864.	0.4	0
75	Pushing the Limits of Cathodoluminescence Signal Detection: Analyzing 2D Materials. Microscopy and Microanalysis, 2015, 21, 2049-2050.	0.4	0
76	A Novel Sb ₂ Te ₃ Polymorph Stable at the Nanoscale. Chemistry of Materials, 2015, 27, 4368-4373.	6.7	13
77	The observation of square ice in graphene questioned. Nature, 2015, 528, E1-E2.	27.8	95
78	Patterned arrays of lateral heterojunctions within monolayer two-dimensional semiconductors. Nature Communications, 2015, 6, 7749.	12.8	213
79	Towards 3D Mapping of BO ₆ Octahedron Rotations at Perovskite Heterointerfaces, Unit Cell by Unit Cell. ACS Nano, 2015, 9, 8412-8419.	14.6	78
80	Efficient phase contrast imaging in STEM using a pixelated detector. Part 1: Experimental demonstration at atomic resolution. Ultramicroscopy, 2015, 151, 160-167.	1.9	192
81	Criteria for Predicting the Formation of Single-Phase High-Entropy Alloys. Physical Review X, 2015, 5, .	8.9	123
82	Monolithic graded-refractive-index glass-based antireflective coatings: broadband/omnidirectional light harvesting and self-cleaning characteristics. Journal of Materials Chemistry C, 2015, 3, 5440-5449.	5.5	55
83	A Pathway for the Growth of Core–Shell Pt–Pd Nanoparticles. Journal of Physical Chemistry C, 2015, 119, 25114-25121.	3.1	11
84	Beyond Atomic Sizes and Hume-Rothery Rules: Understanding and Predicting High-Entropy Alloys. Jom, 2015, 67, 2350-2363.	1.9	99
85	Surface faceting and elemental diffusion behaviour at atomic scale for alloy nanoparticles during in situ annealing. Nature Communications, 2015, 6, 8925.	12.8	159
86	Large-angle illumination STEM: Toward three-dimensional atom-by-atom imaging. Ultramicroscopy, 2015, 151, 122-129.	1.9	54
87	Understanding Individual Defects in CdTe Solar Cells: From Atomic Structure to Electrical Activity. Microscopy and Microanalysis, 2014, 20, 518-519.	0.4	1
88	Grain-Boundary-Enhanced Carrier Collection in CdTe Solar Cells. Physical Review Letters, 2014, 112, 156103.	7.8	258
89	Flexible metallic nanowires with self-adaptive contacts to semiconducting transition-metal dichalcogenide monolayers. Nature Nanotechnology, 2014, 9, 436-442.	31.5	228
90	Band Gap Engineering and Layer-by-Layer Mapping of Selenium-Doped Molybdenum Disulfide. Nano Letters, 2014, 14, 442-449.	9.1	463

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91	Quantitative Annular Dark Field Electron Microscopy Using Single Electron Signals. Microscopy and Microanalysis, 2014, 20, 99-110.	0.4	80
92	Direct Observation of Dopant Atom Diffusion in a Bulk Semiconductor Crystal Enhanced by a Large Size Mismatch. Physical Review Letters, 2014, 113, 155501.	7.8	91
93	Three-Dimensional Location of a Single Dopant with Atomic Precision by Aberration-Corrected Scanning Transmission Electron Microscopy. Nano Letters, 2014, 14, 1903-1908.	9.1	89
94	TFS: Combined Tilt- and Focal Series Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2014, 20, 786-787.	0.4	2
95	Combined Scanning Transmission Electron Microscopy Tilt- and Focal Series. Microscopy and Microanalysis, 2014, 20, 548-560.	0.4	21
96	Tracking Dopant Diffusion Pathways inside Bulk Materials. Microscopy and Microanalysis, 2014, 20, 50-51.	0.4	0
97	Studying Dynamics of Oxygen Vacancy Ordering in Epitaxial LaCoO ₃ / SrTiO ₃ Superlattice with Real-Time Observation. Microscopy and Microanalysis, 2014, 20, 422-423.	0.4	3
98	Toward 3D Mapping of Octahedral Rotations at Perovskite Thin Film Heterointerfaces Unit Cell by Unit Cell. Microscopy and Microanalysis, 2014, 20, 1038-1039.	0.4	0
99	Column-by-Column Imaging of Dislocation Slip Processes in CdTe. Microscopy and Microanalysis, 2014, 20, 1054-1055.	0.4	1
100	Quantification of Dopant Distribution and the Local Band Gap in Selenium-Doped Molybdenum Disulfide. Microscopy and Microanalysis, 2014, 20, 1754-1755.	0.4	0
101	Flexible Metallic Nanowires with Self-Adaptive Contacts to Semiconducting Transition-Metal Dichalcogenide Monolayers. Microscopy and Microanalysis, 2014, 20, 1760-1761.	0.4	1
102	Atomic Structure of Luminescent Centers in High-Efficiency Ce-doped w-AlN Single Crystal. Scientific Reports, 2014, 4, 3778.	3.3	43
103	Persistent Photoconductivity in 2D Electron Gases at Different Oxide Interfaces. Advanced Optical Materials, 2013, 1, 834-843.	7.3	48
104	Synthesis and characterization of p–n homojunction-containing zinc oxide nanowires. Nanoscale, 2013, 5, 2259.	5.6	22
105	Carrier Separation at Dislocation Pairs in CdTe. Physical Review Letters, 2013, 111, 096403.	7.8	51
106	From atomic structure to photovoltaic properties in CdTe solar cells. Ultramicroscopy, 2013, 134, 113-125.	1.9	80
107	Optically transparent, mechanically durable, nanostructured superhydrophobic surfaces enabled by spinodally phase-separated glass thin films. Nanotechnology, 2013, 24, 315602.	2.6	47
108	AC/AB Stacking Boundaries in Bilayer Graphene. Nano Letters, 2013, 13, 3262-3268.	9.1	137

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109	Nanostructured columnar heterostructures of TiO2 and Cu2O enabled by a thin-film self-assembly approach: Potential for photovoltaics. Materials Research Bulletin, 2013, 48, 352-356.	5.2	15
110	Evidence for the Formation of Nitrogen-Rich Platinum and Palladium Nitride Nanoparticles. Chemistry of Materials, 2013, 25, 4936-4945.	6.7	33
111	Single Atom Microscopy. Microscopy and Microanalysis, 2012, 18, 1342-1354.	0.4	63
112	Tuning Fifth-Order Aberrations in a Quadrupole-Octupole Corrector. Microscopy and Microanalysis, 2012, 18, 699-704.	0.4	4
113	Gold on carbon: one billion catalysts under a single label. Physical Chemistry Chemical Physics, 2012, 14, 2969.	2.8	74
114	Interface dipole between two metallic oxides caused by localized oxygen vacancies. Physical Review B, 2012, 86, .	3.2	56
115	Electron Transfer and Ionic Displacements at the Origin of the 2D Electron Gas at the LAO/STO Interface: Direct Measurements with Atomicâ€Column Spatial Resolution. Advanced Materials, 2012, 24, 3952-3957.	21.0	132
116	Using a New Finite Slit Pore Model for NLDFT Analysis of Carbon Pore Structure. Adsorption Science and Technology, 2011, 29, 769-780.	3.2	24
117	The Electron Ronchigram. , 2011, , 117-161.		11
118	The Three-Dimensional Point Spread Function of Aberration-Corrected Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2011, 17, 817-826.	0.4	22
119	An evaluation of phase separated, self-assembled LaMnO ₃ -MgO nanocomposite films directly on IBAD-MgO as buffer layers for flux pinning enhancements in YBa ₂ Cu ₃ O _{7-l´} coated conductors. Journal of Materials Research, 2010, 25, 437-443.	2.6	7
120	Transfer-matrix formalism for the calculation of optical response in multilayer systems: from coherent to incoherent interference. Optics Express, 2010, 18, 24715.	3.4	145
121	Thermal stability and catalytic activity of gold nanoparticles supported on silica. Journal of Catalysis, 2009, 262, 92-101.	6.2	170
122	Few-Layer Graphene as a Support Film for Transmission Electron Microscopy Imaging of Nanoparticles. ACS Applied Materials & Samp; Interfaces, 2009, 1, 2886-2892.	8.0	28
123	Role of pH in the Formation of Structurally Stable and Catalytically Active TiO ₂ -Supported Gold Catalysts. Journal of Physical Chemistry C, 2009, 113, 269-280.	3.1	67
124	Structure and Ultrafast Dynamics of White-Light-Emitting CdSe Nanocrystals. Journal of the American Chemical Society, 2009, 131, 5730-5731.	13.7	91
125	Atomic-resolution spectroscopic imaging: past, present and future. Journal of Electron Microscopy, 2009, 58, 87-97.	0.9	66
126	Rapid autotuning for crystalline specimens from an inline hologram. Microscopy (Oxford, England), 2008, 57, 195-201.	1.5	11

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127	Spatial Resolution and Information Transfer in Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2008, 14, 36-47.	0.4	27
128	Magnetron Sputtering to Prepare Supported Metal Catalysts. , 2008, , 347-353.		2
129	Magnetron sputtering of gold nanoparticles onto WO3 and activated carbon. Catalysis Today, 2007, 122, 248-253.	4.4	68
130	Role of the nanoscale in catalytic CO oxidation by supported Au and Pt nanostructures. Physical Review B, 2007, 76, .	3.2	122
131	The use of Magnetron Sputtering for the Production of Heterogeneous Catalysts. Studies in Surface Science and Catalysis, 2006, , 71-78.	1.5	10
132	Three-dimensional ADF imaging of individual atoms by through-focal series scanning transmission electron microscopy. Ultramicroscopy, 2006, 106, 1062-1068.	1.9	122
133	Depth sectioning of aligned crystals with the aberration-corrected scanning transmission electron microscope. Journal of Electron Microscopy, 2006, 55, 7-12.	0.9	73
134	Depth sectioning with the aberration-corrected scanning transmission electron microscope. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 3044-3048.	7.1	216
135	Nanoparticles of gold on -AlO produced by dc magnetron sputtering. Journal of Catalysis, 2005, 231, 151-158.	6.2	95
136	Atomic-scale manipulation of potential barriers at SrTiO3 grain boundaries. Applied Physics Letters, 2005, 87, 121917.	3.3	25
137	Three-dimensional imaging of individual hafnium atoms inside a semiconductor device. Applied Physics Letters, 2005, 87, 034104.	3.3	206
138	Preparation and Comparison of Supported Gold Nanocatalysts on Anatase, Brookite, Rutile, and P25 Polymorphs of TiO2for Catalytic Oxidation of CO. Journal of Physical Chemistry B, 2005, 109, 10676-10685.	2.6	146
139	Imaging at the picoscale. Materials Today, 2004, 7, 42-48.	14.2	23
140	Nanoscale analysis of YBa2Cu3O7â^'x/La0.67Ca0.33MnO3 interfaces. Solid-State Electronics, 2003, 47, 2245-2248.	1.4	72
141	Controlling hydrocarbon transport and electron beam induced deposition on single layer graphene: Toward atomic scale synthesis in the scanning transmission electron microscope. Nano Select, 0, , .	3.7	5
142	Contrast Mechanisms in Secondary Electron e-Beam-Induced Current (SEEBIC) Imaging. Microscopy and Microanalysis, 0, , 1-17.	0.4	3