Matthew H Mecklenburg

List of Publications by Year
in descending order

85 papers	3,652 citations	236925 25 h-index	133252 59 g-index
87 all docs	87 docs citations	87 times ranked	7416 citing authors

#	Article	IF	Citations
1	Imaging Dielectric Breakdown in Valence Change Memory. Advanced Functional Materials, 2022, 32, 2102313.	14.9	10
2	Utilizing nanoscale particulate matter from the combustion of diesel fuels as a carbonaceous anode electrode for Li-ion batteries. Resources, Conservation and Recycling, 2022, 177, 105972.	10.8	6
3	Imaging Dielectric Breakdown in Valence Change Memory (Adv. Funct. Mater. 2/2022). Advanced Functional Materials, 2022, 32, .	14.9	0
4	Crystal Structure of Colloidally Prepared Metastable Ag₂Se Nanocrystals. Nano Letters, 2021, 21, 5881-5887.	9.1	16
5	In Situ STEM Observations of Elemental Segregation in Phase Change Material GST Under Electrical and Thermal Stress. Microscopy and Microanalysis, 2021, 27, 168-169.	0.4	0
6	Modern STEM EBIC: Emerging Modes and Methods. Microscopy and Microanalysis, 2021, 27, 2350-2352.	0.4	0
7	Technique and Computational Improvements in 4D STEM and Cross-Correlation Analysis. Microscopy and Microanalysis, 2021, 27, 1540-1541.	0.4	0
8	Mean Angular Deviation Minimization To Determine Lattice Parameters in Transmission Kikuchi Diffraction. Microscopy and Microanalysis, 2021, 27, 1608-1609.	0.4	1
9	Imaging Soft and Hard Dielectric Breakdown in Resistive Switching. Microscopy and Microanalysis, 2021, 27, 2354-2355.	0.4	0
10	Determining Lattice Parameters by Curve-Fitting Transmission Kikuchi Diffraction Patterns. Microscopy and Microanalysis, 2021, 27, 2020-2021.	0.4	0
11	In Situ Visualization of the Electron Wind Force in the Elastic Regime. Microscopy and Microanalysis, 2021, 27, 106-107.	0.4	0
12	Chemical Shift Detection with Energy Dispersive Spectroscopy (EDS). Microscopy and Microanalysis, 2021, 27, 2068-2069.	0.4	0
13	Discovery of a Wurtzite-like Cu₂FeSnSe₄ Semiconductor Nanocrystal Polymorph and Implications for Related CuFeSe₂ Materials. ACS Nano, 2021, 15, 13463-13474.	14.6	10
14	Nanoscale TiO₂ Protection Layer Enhances the Built-In Field and Charge Separation Performance of GaP Photoelectrodes. Nano Letters, 2021, 21, 8017-8024.	9.1	6
15	Mapping Charge Recombination and the Effect of Point-Defect Insertion in GaAs Nanowire Heterojunctions. Physical Review Applied, 2021, 16, .	3.8	1
16	Vibrational Sum Frequency Generation Spectroscopy of Surface Hydroxyls on Nickel Phyllosilicate Nanoscrolls. Journal of Physical Chemistry Letters, 2021, 12, 10366-10371.	4.6	4
17	Visualizing the Electron Wind Force in the Elastic Regime. Nano Letters, 2021, 21, 10172-10177.	9.1	8
18	Gold-vapor-assisted chemical vapor deposition of aligned monolayer WSe2 with large domain size and fast growth rate. Nano Research, 2020, 13, 2625-2631.	10.4	15

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19	Determination of Long-Range Internal Stresses in Cyclically Deformed Copper Single Crystals Using Convergent Beam Electron Diffraction. Crystals, 2020, 10, 1071.	2.2	0
20	Electron-Transparent Thermoelectric Coolers Demonstrated with Nanoparticle and Condensation Thermometry. ACS Nano, 2020, 14, 11510-11517.	14.6	11
21	Correlation of Joule Heating and Electromigration-induced Mass Transport within Nanoscale Co Interconnects by In Situ STEM. Microscopy and Microanalysis, 2020, 26, 152-154.	0.4	0
22	Electrical Isolation Preserved by Plasma Focused Ion Beam TEM Sample Preparation and Verified with STEM SEEBIC Imaging. Microscopy and Microanalysis, 2020, 26, 194-195.	0.4	0
23	Fingerprinting the Phases of Thin Film Ge2Sb2Te5 with EELS. Microscopy and Microanalysis, 2020, 26, 904-905.	0.4	0
24	Decoration of suspended single-walled carbon nanotubes with soft-landed size-selected metal nanoparticles. Thin Solid Films, 2020, 699, 137907.	1.8	1
25	STEM EBIC Thermometry Calibration with PEET on Al Nanoparticles. Microscopy and Microanalysis, 2020, 26, 3124-3125.	0.4	1
26	Surface Modification and Functionalization of Boron Nitride Nanotubes via Condensation with Saturated and Unsaturated Alcohols for High Performance Polymer Composites. ACS Applied Nano Materials, 2019, 2, 4053-4060.	5.0	22
27	Secondary-Electron Electron-Beam-Induced Current Measurements at Lattice Resolution. Microscopy and Microanalysis, 2019, 25, 1656-1657.	0.4	1
28	Mapping Electronic State Changes with STEM EBIC. Microscopy and Microanalysis, 2019, 25, 1396-1397.	0.4	0
29	Adjusting the STEM Sample Holder Potential for Improved EBIC Contrast. Microscopy and Microanalysis, 2019, 25, 2354-2355.	0.4	2
30	Measuring nanoscale thermal gradients in suspended MoS2 with STEM-EELS. Applied Physics Letters, 2019, 115, .	3.3	9
31	STEM of a Single Crystal Lithium Ion Battery Anode during Electrochemical Cycling. Microscopy and Microanalysis, 2019, 25, 2060-2061.	0.4	2
32	Electron beam-induced current imaging with two-angstrom resolution. Ultramicroscopy, 2019, 207, 112852.	1.9	23
33	Tunable Thermal Energy Transport across Diamond Membranes and Diamondâ€“Si Interfaces by Nanoscale Graphoepitaxy. ACS Applied Materials & Interfaces, 2019, 11, 18517-18527.	8.0	49
34	Thermometry of Silicon Nanoparticles. Physical Review Applied, 2018, 9, .	3.8	14
35	Mapping Nanoscale Thermal Gradients in MoS2 using Plasmon Energy Shifts. Microscopy and Microanalysis, 2018, 24, 1870-1871.	0.4	0
36	Electromigration of Copper in Lithographically-Defined Aluminum Nanowires. Microscopy and Microanalysis, 2018, 24, 2190-2191.	0.4	0

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37	STEM Imaging with Beam-Induced Hole and Secondary Electron Currents. Physical Review Applied, 2018, 10, .	3.8	29
38	Secondary Electron Contrast in STEM Electron Beam-Induced Current (EBIC): a Path Towards Mapping Electronic Structure. Microscopy and Microanalysis, 2018, 24, 1846-1847.	0.4	3
39	Confined Liquid-Phase Growth of Crystalline Compound Semiconductors on Any Substrate. ACS Nano, 2018, 12, 5158-5167.	14.6	19
40	Low Thermal Boundary Resistance Interfaces for GaN-on-Diamond Devices. ACS Applied Materials & Interfaces, 2018, 10, 24302-24309.	8.0	98
41	Local In Situ Temperature Measurements from Aluminum Nanoparticles. Microscopy and Microanalysis, 2018, 24, 1924-1925.	0.4	3
42	Hierarchical Carbon-Coated Ball-Milled Silicon: Synthesis and Applications in Free-Standing Electrodes and High-Voltage Full Lithium-Ion Batteries. ACS Nano, 2018, 12, 6280-6291.	14.6	99
43	Giant optical anisotropy in a quasi-one-dimensional crystal. Nature Photonics, 2018, 12, 392-396.	31.4	269
44	Atomic Insights into the Enhanced Surface Stability in High Voltage Cathode Materials by Ultrathin Coating. Advanced Functional Materials, 2017, 27, 1602873.	14.9	37
45	Plasmon Energy Mapping in Aluminum and Indium with Sub-Nanometer Resolution. Microscopy and Microanalysis, 2017, 23, 378-379.	0.4	0
46	Temperature-dependent signals in STEM Electron Beam-Induced Current (EBIC) Imaging. Microscopy and Microanalysis, 2017, 23, 1506-1507.	0.4	0
47	STEM EBIC Mapping of the Metal-Insulator Transition in Thin-film NbO₂. Microscopy and Microanalysis, 2017, 23, 1428-1429.	0.4	1
48	Detailed In Situ Observations of Electromigration in Aluminum Wires. Microscopy and Microanalysis, 2017, 23, 1450-1451.	0.4	0
49	In Situ Observation of Cooling in a Bismuth Telluride and Bismuth-Antimony Telluride Nanoscale Heterojunction. Microscopy and Microanalysis, 2017, 23, 1996-1997.	0.4	0
50	Aluminum Nanoparticles as Fiducials for Nanoscale Temperature Measurements. Microscopy and Microanalysis, 2016, 22, 830-831.	0.4	1
51	Nanoscale Mapping of Interfacial Electrical Transport in Graphene-MoS 2 Heterostructures with STEM-EBIC. Microscopy and Microanalysis, 2016, 22, 1552-1553.	0.4	0
52	Aloof Beam Plasmons in Silver Nanoparticles. Microscopy and Microanalysis, 2016, 22, 1642-1643.	0.4	1
53	Temperature Dependence of the Silicon Nitride Volume Plasmon. Microscopy and Microanalysis, 2016, 22, 1574-1575.	0.4	1
54	Temperature Dependence of the Volume Plasmon in Silicon Nanoparticles. Microscopy and Microanalysis, 2016, 22, 296-297.	0.4	0

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55	Asymmetric Temperature Profiles in Joule-Heated in Aluminum Nanowires. Microscopy and Microanalysis, 2016, 22, 772-773.	0.4	0
56	Sputtered Hfâ€“Ti nanostructures: A segregation and high-temperature stability study. Acta Materialia, 2016, 108, 8-16.	7.9	35
57	Correlation of Ti3+ states with photocatalytic enhancement in TiO2-passivated p-GaAs. Journal of Catalysis, 2016, 337, 133-137.	6.2	25
58	Imaging interfacial electrical transport in grapheneâ€“MoS2 heterostructures with electron-beam-induced-currents. Applied Physics Letters, 2015, 107, 223104.	3.3	18
59	Time-Resolved Imaging of Electrochemical Switching in Nanoscale Resistive Memory Elements. Microscopy and Microanalysis, 2015, 21, 1911-1912.	0.4	0
60	Applications of Plasmon Energy Expansion Thermometry. Microscopy and Microanalysis, 2015, 21, 663-664.	0.4	0
61	Introduction to Plasmon Energy Expansion Thermometry. Microscopy and Microanalysis, 2015, 21, 1907-1908.	0.4	0
62	Capacity retention behavior and morphology evolution of Si_xGe_{1â^'x}nanoparticles as lithium-ion battery anode. Nanotechnology, 2015, 26, 255702.	2.6	13
63	Nanoscale temperature mapping in operating microelectronic devices. Science, 2015, 347, 629-632.	12.6	253
64	Direct Bandgap Transition in Manyâ€Layer MoS₂ by Plasmaâ€Induced Layer Decoupling. Advanced Materials, 2015, 27, 1573-1578.	21.0	102
65	Controlling the Trap State Landscape of Colloidal CdSe Nanocrystals with Cadmium Halide Ligands. Chemistry of Materials, 2015, 27, 744-756.	6.7	58
66	Reversible Semiconducting-to-Metallic Phase Transition in Chemical Vapor Deposition Grown Monolayer WSe₂ and Applications for Devices. ACS Nano, 2015, 9, 7383-7391.	14.6	164
67	Nanofilament Formation and Regeneration During Cu/Al₂O₃ Resistive Memory Switching. Nano Letters, 2015, 15, 3983-3987.	9.1	123
68	Microscopic Study of Atomic Layer Deposition of TiO₂ on GaAs and Its Photocatalytic Application. Chemistry of Materials, 2015, 27, 7977-7981.	6.7	27
69	Two-Dimensional Metalâ€“Organic Surfaces for Efficient Hydrogen Evolution from Water. Journal of the American Chemical Society, 2015, 137, 118-121.	13.7	521
70	Three-Dimensional Imaging of Dislocations and Defects in Materials at Atomic Resolution Using Electron Tomography. Microscopy and Microanalysis, 2014, 20, 1062-1063.	0.4	0
71	Hydrothermal Preparation and Magnetic Properties of NaFeSi₂O₆: Nanowires vs Bulk Samples. Inorganic Chemistry, 2014, 53, 12396-12401.	4.0	9
72	Large-Scale Fabrication, 3D Tomography, and Lithium-Ion Battery Application of Porous Silicon. Nano Letters, 2014, 14, 261-268.	9.1	213

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73	Aligned Epitaxial SnO₂ Nanowires on Sapphire: Growth and Device Applications. Nano Letters, 2014, 14, 3014-3022.	9.1	72
74	STEM EBIC to Study 2D Materials. Microscopy and Microanalysis, 2014, 20, 172-173.	0.4	1
75	Improved Temperature Determination from Plasmon Energy Shifts in Aluminum. Microscopy and Microanalysis, 2014, 20, 200-201.	0.4	0
76	Low-Temperature Synthesis of AMoO₄ (A = Ca, Sr, Ba) Scheelite Nanocrystals. Chemistry of Materials, 2013, 25, 4129-4134.	6.7	34
77	Charged Nanoparticle Dynamics in Water Induced by Scanning Transmission Electron Microscopy. Langmuir, 2012, 28, 3695-3698.	3.5	107
78	Transparent and Flexible Graphene Charge-Trap Memory. ACS Nano, 2012, 6, 7879-7884.	14.6	108
79	In Situ Transmission Electron Microscopy of Lead Dendrites and Lead Ions in Aqueous Solution. ACS Nano, 2012, 6, 6308-6317.	14.6	165
80	Chemical Vapor Deposition of Graphene on Copper from Methane, Ethane and Propane: Evidence for Bilayer Selectivity. Small, 2012, 8, 1415-1422.	10.0	93
81	Electron tomography at 2.4-Ã¥ngstrÃ¶m resolution. Nature, 2012, 483, 444-447.	27.8	366
82	Morphological and Dimensional Control via Hierarchical Assembly of Doped Oligoaniline Single Crystals. Journal of the American Chemical Society, 2012, 134, 9251-9262.	13.7	99
83	Atomic-Scale Characterization of Graphene Grown on Copper (100) Single Crystals. Journal of the American Chemical Society, 2011, 133, 12536-12543.	13.7	154
84	Spin and the Honeycomb Lattice: Lessons from Graphene. Physical Review Letters, 2011, 106, 116803.	7.8	97
85	Effect of precursor flux on compositional evolution in InP1â^'xSbx nanowires grown via self-catalyzed vaporâ€“liquidâ€“solid process. Journal of Crystal Growth, 2011, 336, 14-19.	1.5	18