Robert Hovden

List of Publications by Year
in descending order

118 papers	7,400 citations	94433 37 h-index	53230 85 g-index
125 all docs	125 docs citations	125 times ranked	12485 citing authors

#	Article	IF	Citations
1	Structurally ordered intermetallic platinumâ€“cobalt coreâ€“shell nanoparticles with enhanced activity and stability as oxygen reduction electrocatalysts. Nature Materials, 2013, 12, 81-87.	27.5	1,768
2	Atomic and electronic reconstruction at the van der Waals interface in twisted bilayer graphene. Nature Materials, 2019, 18, 448-453.	27.5	454
3	Strain solitons and topological defects in bilayer graphene. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 11256-11260.	7.1	407
4	High Dynamic Range Pixel Array Detector for Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2016, 22, 237-249.	0.4	334
5	Tuning Oxygen Reduction Reaction Activity via Controllable Dealloying: A Model Study of Ordered Cu₃Pt/C Intermetallic Nanocatalysts. Nano Letters, 2012, 12, 5230-5238.	9.1	291
6	Atomically engineered ferroic layers yield a room-temperature magnetoelectric multiferroic. Nature, 2016, 537, 523-527.	27.8	275
7	Hierarchical Porous Polymer Scaffolds from Block Copolymers. Science, 2013, 341, 530-534.	12.6	257
8	Direct Imaging of a Two-Dimensional Silica Glass on Graphene. Nano Letters, 2012, 12, 1081-1086.	9.1	236
9	Twinning and Twisting of Tri- and Bilayer Graphene. Nano Letters, 2012, 12, 1609-1615.	9.1	224
10	Structure and control of charge density waves in two-dimensional 1T-TaS ₂. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 15054-15059.	7.1	205
11	Surfactant Ligand Removal and Rational Fabrication of Inorganically Connected Quantum Dots. Nano Letters, 2011, 11, 5356-5361.	9.1	199
12	Three-Dimensional Tracking and Visualization of Hundreds of Ptâˆ’Co Fuel Cell Nanocatalysts During Electrochemical Aging. Nano Letters, 2012, 12, 4417-4423.	9.1	162
13	Multicompartment Mesoporous Silica Nanoparticles with Branched Shapes: An Epitaxial Growth Mechanism. Science, 2013, 340, 337-341.	12.6	151
14	Solidâ€“Solid Phase Transformations Induced through Cation Exchange and Strain in 2D Heterostructured Copper Sulfide Nanocrystals. Nano Letters, 2014, 14, 7090-7099.	9.1	147
15	Stacking Order Dependent Second Harmonic Generation and Topological Defects in h-BN Bilayers. Nano Letters, 2013, 13, 5660-5665.	9.1	141
16	Controlled Synthesis of Uniform Cobalt Phosphide Hyperbranched Nanocrystals Using Tri-n-octylphosphine Oxide as a Phosphorus Source. Nano Letters, 2011, 11, 188-197.	9.1	110
17	Data Processing for Atomic Resolution Electron Energy Loss Spectroscopy. Microscopy and Microanalysis, 2012, 18, 667-675.	0.4	103
18	Defining Crystalline/Amorphous Phases of Nanoparticles through X-ray Absorption Spectroscopy and X-ray Diffraction: The Case of Nickel Phosphide. Chemistry of Materials, 2013, 25, 2394-2403.	6.7	101

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19	Atomic lattice disorder in charge-density-wave phases of exfoliated dichalcogenides (1T-TaS) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 113, 11420-11424.	7.1	86
20	Identical Location Transmission Electron Microscopy Imaging of Site-Selective Pt Nanocatalysts: Electrochemical Activation and Surface Disordering. Journal of the American Chemical Society, 2015, 137, 14992-14998.	13.7	85
21	Enhanced Supercapacitor Performance for Equal Coâ€“Mn Stoichiometry in Colloidal Co_{3-x}Mn_xO₄Nanoparticles, in Additive-Free Electrodes. Chemistry of Materials, 2015, 27, 7861-7873.	6.7	83
22	Solar Water Oxidation by an InGaN Nanowire Photoanode with a Bandgap of 1.7 eV. ACS Energy Letters, 2018, 3, 307-314.	17.4	73
23	Multicomponent Nanomaterials with Complex Networked Architectures from Orthogonal Degradation and Binary Metal Backfilling in ABC Triblock Terpolymers. Journal of the American Chemical Society, 2015, 137, 6026-6033.	13.7	70
24	Nanoscale assembly processes revealed in the nacroprismatic transition zone of Pinna nobilis mollusc shells. Nature Communications, 2015, 6, 10097.	12.8	69
25	Nature and evolution of incommensurate charge order in manganites visualized with cryogenic scanning transmission electron microscopy. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 1445-1450.	7.1	68
26	Nanoscale deformation mechanics reveal resilience in nacre of Pinna nobilis shell. Nature Communications, 2019, 10, 4822.	12.8	67
27	Twist engineering of the two-dimensional magnetism in double bilayer chromium triiodide homostructures. Nature Physics, 2022, 18, 30-36.	16.7	62
28	Image registration of low signal-to-noise cryo-STEM data. Ultramicroscopy, 2018, 191, 56-65.	1.9	59
29	Networked and chiral nanocomposites from ABC triblock terpolymer coassembly with transition metal oxide nanoparticles. Journal of Materials Chemistry, 2012, 22, 1078-1087.	6.7	58
30	High-efficiency AlGaN/GaN/AlGaN tunnel junction ultraviolet light-emitting diodes. Photonics Research, 2020, 8, 331.	7.0	56
31	Robotic four-dimensional pixel assembly of van der Waals solids. Nature Nanotechnology, 2022, 17, 361-366.	31.5	54
32	Bending and breaking of stripes in a charge ordered manganite. Nature Communications, 2017, 8, 1883.	12.8	51
33	Stable Unassisted Solar Water Splitting on Semiconductor Photocathodes Protected by Multifunctional GaN Nanostructures. ACS Energy Letters, 2019, 4, 1541-1548.	17.4	50
34	Extended Depth of Field for High-Resolution Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2011, 17, 75-80.	0.4	44
35	Propagation of Structural Disorder in Epitaxially Connected Quantum Dot Solids from Atomic to Micron Scale. Nano Letters, 2016, 16, 5714-5718.	9.1	43
36	Tutorial on the Visualization of Volumetric Data Using tomviz. Microscopy Today, 2018, 26, 12-17.	0.3	43

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37	Nanomaterial datasets to advance tomography in scanning transmission electron microscopy. Scientific Data, 2016, 3, 160041.	5.3	42
38	A Single-Junction Cathodic Approach for Stable Unassisted Solar Water Splitting. Joule, 2019, 3, 2444-2456.	24.0	39
39	An In0.42Ga0.58N tunnel junction nanowire photocathode monolithically integrated on a nonplanar Si wafer. Nano Energy, 2019, 57, 405-413.	16.0	38
40	Breaking the Crowther limit: Combining depth-sectioning and tilt tomography for high-resolution, wide-field 3D reconstructions. Ultramicroscopy, 2014, 140, 26-31.	1.9	35
41	Deep Ultraviolet Luminescence Due to Extreme Confinement in Monolayer GaN/Al(Ga)N Nanowire and Planar Heterostructures. Nano Letters, 2019, 19, 7852-7858.	9.1	35
42	Stacking, strain, and twist in 2D materials quantified by 3D electron diffraction. Physical Review Materials, 2019, 3, .	2.4	30
43	Magnetic frustration control through tunable stereochemically driven disorder in entropy-stabilized oxides. Physical Review Materials, 2019, 3, .	2.4	29
44	Bibliometrics for Internet media: Applying the hâ€index to <scp>Y</scp>ou<scp>T</scp>ube. Journal of the Association for Information Science and Technology, 2013, 64, 2326-2331.	2.6	27
45	Graphene-assisted molecular beam epitaxy of AlN for AlGaN deep-ultraviolet light-emitting diodes. Applied Physics Letters, 2020, 116, .	3.3	26
46	Efficient elastic imaging of single atoms on ultrathin supports in a scanning transmission electron microscope. Ultramicroscopy, 2012, 123, 59-65.	1.9	24
47	Hierarchically Structured Hematite Architectures Achieved by Growth in a Silica Hydrogel. Journal of the American Chemical Society, 2015, 137, 5184-5192.	13.7	24
48	Channeling of a subangstrom electron beam in a crystal mapped to two-dimensional molecular orbitals. Physical Review B, 2012, 86, .	3.2	23
49	Removing Stripes, Scratches, and Curtaining with Nonrecoverable Compressed Sensing. Microscopy and Microanalysis, 2019, 25, 705-710.	0.4	21
50	Physical Confinement Promoting Formation of Cu₂Oâ€“Au Heterostructures with Au Nanoparticles Entrapped within Crystalline Cu₂O Nanorods. Chemistry of Materials, 2017, 29, 555-563.	6.7	20
51	Imaging Polarity in Two Dimensional Materials by Breaking Friedel's Law. Ultramicroscopy, 2020, 215, 113019.	1.9	20
52	An AlGaN tunnel junction light emitting diode operating at 255â€‰nm. Applied Physics Letters, 2020, 117, .	3.3	19
53	Electron overflow of AlGaN deep ultraviolet light emitting diodes. Applied Physics Letters, 2021, 118, .	3.3	17
54	Engineering new limits to magnetostriction through metastability in iron-gallium alloys. Nature Communications, 2021, 12, 2757.	12.8	14

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55	Two-dimensional charge order stabilized in clean polytype heterostructures. Nature Communications, 2022, 13, 413.	12.8	14
56	Periodic Artifact Reduction in Fourier Transforms of Full Field Atomic Resolution Images. Microscopy and Microanalysis, 2015, 21, 436-441.	0.4	13
57	Nanoparticle Metamorphosis: An in Situ High-Temperature Transmission Electron Microscopy Study of the Structural Evolution of Heterogeneous Au:Fe₂O₃ Nanoparticles. ACS Nano, 2014, 8, 5315-5322.	14.6	12
58	The mesoscale order of nacreous pearls. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	12
59	A Simple Preparation Method for Full-Range Electron Tomography of Nanoparticles and Fine Powders. Microscopy and Microanalysis, 2017, 23, 1150-1158.	0.4	11
60	Sampling limits for electron tomography with sparsity-exploiting reconstructions. Ultramicroscopy, 2018, 186, 94-103.	1.9	11
61	Thickness and Stacking Sequence Determination of Exfoliated Dichalcogenides (1T-TaS₂,) Tj ETQq1 1 0.784314 rgBT /Ov Microanalysis, 2018, 24, 387-395.	0.4	11
62	Tomviz: Open Source Platform Connecting Image Processing Pipelines to GPU Accelerated 3D Visualization. Microscopy and Microanalysis, 2019, 25, 408-409.	0.4	10
63	Electron tomography for functional nanomaterials. MRS Bulletin, 2020, 45, 298-304.	3.5	9
64	Ultrafast Modulations and Detection of a Ferro-Rotational Charge Density Wave Using Time-Resolved Electric Quadrupole Second Harmonic Generation. Physical Review Letters, 2021, 127, 126401.	7.8	9
65	Imaging atomic-scale chemistry from fused multi-modal electron microscopy. Npj Computational Materials, 2022, 8, .	8.7	9
66	Repeatable and Transferable Processing for Electron Tomography: An Open Platform for Visualization and Reconstruction of 3D Materials. Microscopy and Microanalysis, 2015, 21, 2407-2408.	0.4	8
67	The Open-Source Cornell Spectrum Imager. Microscopy Today, 2013, 21, 40-44.	0.3	7
68	Introduction to the Ronchigram and its Calculation with Ronchigram.com. Microscopy Today, 2019, 27, 12-15.	0.3	7
69	Optimal STEM Convergence Angle Selection Using a Convolutional Neural Network and the Strehl Ratio. Microscopy and Microanalysis, 2020, 26, 921-928.	0.4	7
70	Optical and interface characteristics of Al0.56Ga0.44N/Al0.62Ga0.38N multiquantum wells with â^¼280â€¯nm emission grown by plasma-assisted molecular beam epitaxy. Journal of Crystal Growth, 2019, 508, 66-71.	1.5	6
71	Strain Accommodation and Coherency in Laterally-Stitched WSe 2 /WS 2 Junctions. Microscopy and Microanalysis, 2016, 22, 870-871.	0.4	5
72	Advanced Platform for 3D Visualization, Reconstruction, and Segmentation with Electron Tomography. Microscopy and Microanalysis, 2016, 22, 2070-2071.	0.4	5

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73	Dynamic compressed sensing for real-time tomographic reconstruction. Ultramicroscopy, 2020, 219, 113122.	1.9	5
74	Compressed Sensing, Sparsity, and the Reliability of Tomographic Reconstructions. Microscopy and Microanalysis, 2014, 20, 796-797.	0.4	4
75	tomviz: Providing Advanced Electron Tomography by Streamlining Alignment, Reconstruction, and 3D Visualization. Microscopy and Microanalysis, 2017, 23, 222-223.	0.4	4
76	Running Digital Micrograph on Linux and Mac OSX. Microscopy Today, 2012, 20, 24-27.	0.3	3
77	4D-STEM for Quantitative Imaging of Magnetic Materials with Enhanced Contrast and Resolution. Microscopy and Microanalysis, 2016, 22, 1718-1719.	0.4	3
78	Aberration-Corrected STEM/EELS at Cryogenic Temperatures. Microscopy and Microanalysis, 2017, 23, 428-429.	0.4	3
79	Heteroepitaxy of Fin-Shaped InGaN Nanoridge Using Molecular Beam Epitaxy. Crystal Growth and Design, 2018, 18, 5750-5756.	3.0	3
80	Maximal Resolution from the Ronchigram: Human vs. Deep Learning. Microscopy and Microanalysis, 2019, 25, 160-161.	0.4	3
81	Contamination of TEM Holders Quantified and Mitigated With the Open-Hardware, High-Vacuum Bakeout System. Microscopy and Microanalysis, 2020, 26, 906-912.	0.4	3
82	Recovering Chemistry at Atomic Resolution using Multi-Modal Spectroscopy. Microscopy and Microanalysis, 2021, 27, 1226-1228.	0.4	3
83	GaNâ€Based Deepâ€Nano Structures: Break the Efficiency Bottleneck of Conventional Nanoscale Optoelectronics. Advanced Optical Materials, 2022, 10, .	7.3	3
84	New Approaches to Data Processing for Atomic Resolution EELS. Microscopy and Microanalysis, 2012, 18, 970-971.	0.4	2
85	Three-Dimensional Arrangement and Connectivity of Lead-Chalcogenide Nanoparticle Assemblies for Next Generation Photovoltaics. Microscopy and Microanalysis, 2014, 20, 542-543.	0.4	2
86	Removing Stripes, Scratches, and Curtaining with Non-Recoverable Compressed Sensing. Microscopy and Microanalysis, 2019, 25, 174-175.	0.4	2
87	Defining Theoretical Limits of Aberration-Corrected Electron Tomography: New Bounds for Resolution, Object Size, and Dose. Microscopy and Microanalysis, 2019, 25, 1810-1811.	0.4	2
88	Real-Time 3D Analysis During Tomographic Experiments on tomviz. Microscopy and Microanalysis, 2021, 27, 2860-2862.	0.4	2
89	Limits of Three-Dimensional Resolution and Dose for Aberration-Corrected Electron Tomography. Physical Review Applied, 2021, 15, .	3.8	2
90	Electron Channeling Artifacts in Silicon [211] Using Aberration-Corrected STEM. Microscopy and Microanalysis, 2009, 15, 1492-1493.	0.4	1

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91	Determining Resolution in an Aberration-Corrected Era: Why Your Probe Is Larger Than You Thought. Microscopy and Microanalysis, 2010, 16, 152-153.	0.4	1
92	Cornell Spectrum Imager: Open Source Spectrum Analysis with ImageJ. Microscopy and Microanalysis, 2011, 17, 792-793.	0.4	1
93	Lorentz-STEM imaging of Fields and Domains using a High-Speed, High-Dynamic Range Pixel Array Detector at Atomic Resolution. Microscopy and Microanalysis, 2015, 21, 2309-2310.	0.4	1
94	Long Range Order and Atomic Connectivity in Two-Dimensional Square PbSe Nanocrystal Superlattices. Microscopy and Microanalysis, 2015, 21, 1329-1330.	0.4	1
95	Low Temperature Electron Microscopy of â€œCharge-Orderedâ€•Phases. Microscopy and Microanalysis, 2019, 25, 934-935.	0.4	1
96	Improving the Speed and Accuracy of Large-scale Scanning Transmission Electron Microscopy (STEM) Electron Scattering Simulations. Microscopy and Microanalysis, 2020, 26, 456-458.	0.4	1
97	Two-dimensional charge order stabilized in clean polytype heterostructures. Microscopy and Microanalysis, 2021, 27, 896-898.	0.4	1
98	Structure-Property Relationships for Graphene Grains and Grain Boundaries. Microscopy and Microanalysis, 2012, 18, 1512-1513.	0.4	0
99	Atomic Imaging Across Strain Boundaries in Bilayer Graphene with ADF-STEM and DF-TEM. Microscopy and Microanalysis, 2014, 20, 1058-1059.	0.4	0
100	Imaging Local Polarization and Domain Boundaries in Multiferroic (LuFeO3)m/(LuFe2O4)n Superlattices. Microscopy and Microanalysis, 2015, 21, 1303-1304.	0.4	0
101	Quantitative, Real-Space Statistical Analysis of Imperfect Lattices. Microscopy and Microanalysis, 2016, 22, 892-893.	0.4	0
102	Advances in Mapping Periodic Structural Modulations of Atomic Lattices. Microscopy and Microanalysis, 2016, 22, 552-553.	0.4	0
103	Mapping Periodic Lattice Distortions in Exfoliated Dichalchogenides with Atomic Resolution cryo-STEM. Microscopy and Microanalysis, 2016, 22, 1550-1551.	0.4	0
104	Thickness and Stacking Sequence Determination of Exfoliated Dichalchogenides Using Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2016, 22, 1456-1457.	0.4	0
105	Imaging Local Polarization and Domain Boundaries with Picometer-Precision Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2016, 22, 898-899.	0.4	0
106	Mapping Picometer Scale Periodic Lattice Distortions with Aberration Corrected Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2017, 23, 420-421.	0.4	0
107	Emergent Phase Coherence of Stripe Order in Manganites Revealed with Cryogenic Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2017, 23, 1630-1631.	0.4	0
108	New Full-Range Electron Tomography Procedure for Accurate Quantification of Surfaces, Curvature, and Porosity in Energy-Related Nanomaterials. Microscopy and Microanalysis, 2017, 23, 2002-2003.	0.4	0

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109	Epitaxial Quantum Dot Superlattices: From Synthesis to Characterization to Electronic Structure. Microscopy and Microanalysis, 2017, 23, 1884-1885.	0.4	0
110	Real-Time Tomography with Interactive 3D Visualization using tomviz. Microscopy and Microanalysis, 2018, 24, 556-557.	0.4	0
111	Tricky Registration for Unruly Data: Image Registration of Low-Signal-to-Noise Cryo-STEM Data. Microscopy and Microanalysis, 2018, 24, 518-519.	0.4	0
112	Stacking, Strain, & Stiffness of 2D Transition Metal Dichalcogenides Quantified through Reciprocal Space. Microscopy and Microanalysis, 2018, 24, 1586-1587.	0.4	0
113	Image Registration of Low-Signal-to-Noise STEM Data with Open Source Software. Microscopy and Microanalysis, 2019, 25, 200-201.	0.4	0
114	Nanoscale Deformation Processes Revealed in Nacre of Pinna nobilis Mollusk Shells. Microscopy and Microanalysis, 2019, 25, 1880-1881.	0.4	0
115	High-Efficiency AlGaN Tunnel Junction Deep Ultraviolet LEDs Operating at 265 nm. , 2019, , .		0
116	Nano-Mechanics Reveal Resilience in Nacre of Mollusk Shells and Pearls. Microscopy and Microanalysis, 2020, 26, 104-106.	0.4	0
117	Recovery of long-range order in two-dimensional charge density waves at high temperatures. Microscopy and Microanalysis, 2021, 27, 952-954.	0.4	0
118	Rapid Holographic Display of 3D Nanomaterials. Microscopy and Microanalysis, 2021, 27, 1630-1633.	0.4	0