

# Robert Hovden

## List of Publications by Year in descending order

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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	Twist engineering of the two-dimensional magnetism in double bilayer chromium triiodide homostructures. <i>Nature Physics</i> , 2022, 18, 30-36.	16.7	62
2	GaN-Based Deep-Nano Structures: Break the Efficiency Bottleneck of Conventional Nanoscale Optoelectronics. <i>Advanced Optical Materials</i> , 2022, 10, .	7.3	3
3	Imaging atomic-scale chemistry from fused multi-modal electron microscopy. <i>Npj Computational Materials</i> , 2022, 8, .	8.7	9
4	Robotic four-dimensional pixel assembly of van der Waals solids. <i>Nature Nanotechnology</i> , 2022, 17, 361-366.	31.5	54
5	Two-dimensional charge order stabilized in clean polytype heterostructures. <i>Nature Communications</i> , 2022, 13, 413.	12.8	14
6	Engineering new limits to magnetostriction through metastability in iron-gallium alloys. <i>Nature Communications</i> , 2021, 12, 2757.	12.8	14
7	Electron overflow of AlGaIn deep ultraviolet light emitting diodes. <i>Applied Physics Letters</i> , 2021, 118, .	3.3	17
8	Recovering Chemistry at Atomic Resolution using Multi-Modal Spectroscopy. <i>Microscopy and Microanalysis</i> , 2021, 27, 1226-1228.	0.4	3
9	Recovery of long-range order in two-dimensional charge density waves at high temperatures. <i>Microscopy and Microanalysis</i> , 2021, 27, 952-954.	0.4	0
10	Real-Time 3D Analysis During Tomographic Experiments on tomviz. <i>Microscopy and Microanalysis</i> , 2021, 27, 2860-2862.	0.4	2
11	Two-dimensional charge order stabilized in clean polytype heterostructures. <i>Microscopy and Microanalysis</i> , 2021, 27, 896-898.	0.4	1
12	Rapid Holographic Display of 3D Nanomaterials. <i>Microscopy and Microanalysis</i> , 2021, 27, 1630-1633.	0.4	0
13	Ultrafast Modulations and Detection of a Ferro-Rotational Charge Density Wave Using Time-Resolved Electric Quadrupole Second Harmonic Generation. <i>Physical Review Letters</i> , 2021, 127, 126401.	7.8	9
14	Limits of Three-Dimensional Resolution and Dose for Aberration-Corrected Electron Tomography. <i>Physical Review Applied</i> , 2021, 15, .	3.8	2
15	The mesoscale order of nacreous pearls. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	12
16	Contamination of TEM Holders Quantified and Mitigated With the Open-Hardware, High-Vacuum Bakeout System. <i>Microscopy and Microanalysis</i> , 2020, 26, 906-912.	0.4	3
17	Dynamic compressed sensing for real-time tomographic reconstruction. <i>Ultramicroscopy</i> , 2020, 219, 113122.	1.9	5
18	Nano-Mechanics Reveal Resilience in Nacre of Mollusk Shells and Pearls. <i>Microscopy and Microanalysis</i> , 2020, 26, 104-106.	0.4	0

#	ARTICLE	IF	CITATIONS
19	Improving the Speed and Accuracy of Large-scale Scanning Transmission Electron Microscopy (STEM) Electron Scattering Simulations. <i>Microscopy and Microanalysis</i> , 2020, 26, 456-458.	0.4	1
20	Optimal STEM Convergence Angle Selection Using a Convolutional Neural Network and the Strehl Ratio. <i>Microscopy and Microanalysis</i> , 2020, 26, 921-928.	0.4	7
21	Imaging Polarity in Two Dimensional Materials by Breaking Friedel's Law. <i>Ultramicroscopy</i> , 2020, 215, 113019.	1.9	20
22	Graphene-assisted molecular beam epitaxy of AlN for AlGaIn deep-ultraviolet light-emitting diodes. <i>Applied Physics Letters</i> , 2020, 116, .	3.3	26
23	Electron tomography for functional nanomaterials. <i>MRS Bulletin</i> , 2020, 45, 298-304.	3.5	9
24	An AlGaIn tunnel junction light emitting diode operating at 255nm. <i>Applied Physics Letters</i> , 2020, 117, .	3.3	19
25	High-efficiency AlGaIn/GaN/AlGaIn tunnel junction ultraviolet light-emitting diodes. <i>Photonics Research</i> , 2020, 8, 331.	7.0	56
26	A Single-Junction Cathodic Approach for Stable Unassisted Solar Water Splitting. <i>Joule</i> , 2019, 3, 2444-2456.	24.0	39
27	Removing Stripes, Scratches, and Curtaining with Non-Recoverable Compressed Sensing. <i>Microscopy and Microanalysis</i> , 2019, 25, 174-175.	0.4	2
28	Image Registration of Low-Signal-to-Noise STEM Data with Open Source Software. <i>Microscopy and Microanalysis</i> , 2019, 25, 200-201.	0.4	0
29	Defining Theoretical Limits of Aberration-Corrected Electron Tomography: New Bounds for Resolution, Object Size, and Dose. <i>Microscopy and Microanalysis</i> , 2019, 25, 1810-1811.	0.4	2
30	Nanoscale Deformation Processes Revealed in Nacre of <i>Pinna nobilis</i> Mollusk Shells. <i>Microscopy and Microanalysis</i> , 2019, 25, 1880-1881.	0.4	0
31	Tomviz: Open Source Platform Connecting Image Processing Pipelines to GPU Accelerated 3D Visualization. <i>Microscopy and Microanalysis</i> , 2019, 25, 408-409.	0.4	10
32	Nanoscale deformation mechanics reveal resilience in nacre of <i>Pinna nobilis</i> shell. <i>Nature Communications</i> , 2019, 10, 4822.	12.8	67
33	Maximal Resolution from the Ronchigram: Human vs. Deep Learning. <i>Microscopy and Microanalysis</i> , 2019, 25, 160-161.	0.4	3
34	Low Temperature Electron Microscopy of Charge-Ordered Phases. <i>Microscopy and Microanalysis</i> , 2019, 25, 934-935.	0.4	1
35	Deep Ultraviolet Luminescence Due to Extreme Confinement in Monolayer GaN/Al(GaN) Nanowire and Planar Heterostructures. <i>Nano Letters</i> , 2019, 19, 7852-7858.	9.1	35
36	Introduction to the Ronchigram and its Calculation with Ronchigram.com. <i>Microscopy Today</i> , 2019, 27, 12-15.	0.3	7

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37	Stable Unassisted Solar Water Splitting on Semiconductor Photocathodes Protected by Multifunctional GaN Nanostructures. <i>ACS Energy Letters</i> , 2019, 4, 1541-1548.	17.4	50
38	Atomic and electronic reconstruction at the van der Waals interface in twisted bilayer graphene. <i>Nature Materials</i> , 2019, 18, 448-453.	27.5	454
39	Removing Stripes, Scratches, and Curtaining with Nonrecoverable Compressed Sensing. <i>Microscopy and Microanalysis</i> , 2019, 25, 705-710.	0.4	21
40	High-Efficiency AlGaIn Tunnel Junction Deep Ultraviolet LEDs Operating at 265 nm. , 2019, , .		0
41	An In <sub>0.42</sub> Ga <sub>0.58</sub> N tunnel junction nanowire photocathode monolithically integrated on a nonplanar Si wafer. <i>Nano Energy</i> , 2019, 57, 405-413.	16.0	38
42	Optical and interface characteristics of Al <sub>0.56</sub> Ga <sub>0.44</sub> N/Al <sub>0.62</sub> Ga <sub>0.38</sub> N multiquantum wells with $\lambda = 280$ nm emission grown by plasma-assisted molecular beam epitaxy. <i>Journal of Crystal Growth</i> , 2019, 508, 66-71.	1.5	6
43	Stacking, strain, and twist in 2D materials quantified by 3D electron diffraction. <i>Physical Review Materials</i> , 2019, 3, .	2.4	30
44	Magnetic frustration control through tunable stereochemically driven disorder in entropy-stabilized oxides. <i>Physical Review Materials</i> , 2019, 3, .	2.4	29
45	Tutorial on the Visualization of Volumetric Data Using <i>tomviz</i> . <i>Microscopy Today</i> , 2018, 26, 12-17.	0.3	43
46	Solar Water Oxidation by an InGaIn Nanowire Photoanode with a Bandgap of 1.7 eV. <i>ACS Energy Letters</i> , 2018, 3, 307-314.	17.4	73
47	Sampling limits for electron tomography with sparsity-exploiting reconstructions. <i>Ultramicroscopy</i> , 2018, 186, 94-103.	1.9	11
48	Nature and evolution of incommensurate charge order in manganites visualized with cryogenic scanning transmission electron microscopy. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, 1445-1450.	7.1	68
49	Real-Time Tomography with Interactive 3D Visualization using <i>tomviz</i> . <i>Microscopy and Microanalysis</i> , 2018, 24, 556-557.	0.4	0
50	Tricky Registration for Unruly Data: Image Registration of Low-Signal-to-Noise Cryo-STEM Data. <i>Microscopy and Microanalysis</i> , 2018, 24, 518-519.	0.4	0
51	Stacking, Strain, & Stiffness of 2D Transition Metal Dichalcogenides Quantified through Reciprocal Space. <i>Microscopy and Microanalysis</i> , 2018, 24, 1586-1587.	0.4	0
52	Heteroepitaxy of Fin-Shaped InGaIn Nanoridge Using Molecular Beam Epitaxy. <i>Crystal Growth and Design</i> , 2018, 18, 5750-5756.	3.0	3
53	Thickness and Stacking Sequence Determination of Exfoliated Dichalcogenides (1T-TaS <sub>2</sub> ). <i>Microscopy and Microanalysis</i> , 2018, 24, 387-395.	0.4	11
54	Image registration of low signal-to-noise cryo-STEM data. <i>Ultramicroscopy</i> , 2018, 191, 56-65.	1.9	59

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55	Physical Confinement Promoting Formation of Cu <sub>2</sub> O@Au Heterostructures with Au Nanoparticles Entrapped within Crystalline Cu <sub>2</sub> O Nanorods. Chemistry of Materials, 2017, 29, 555-563.	6.7	20
56	Bending and breaking of stripes in a charge ordered manganite. Nature Communications, 2017, 8, 1883.	12.8	51
57	Providing Advanced Electron Tomography by Streamlining Alignment, Reconstruction, and 3D Visualization. Microscopy and Microanalysis, 2017, 23, 222-223.	0.4	4
58	Mapping Picometer Scale Periodic Lattice Distortions with Aberration Corrected Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2017, 23, 420-421.	0.4	0
59	Aberration-Corrected STEM/EELS at Cryogenic Temperatures. Microscopy and Microanalysis, 2017, 23, 428-429.	0.4	3
60	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
61	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
62	A Simple Preparation Method for Full-Range Electron Tomography of Nanoparticles and Fine Powders. Microscopy and Microanalysis, 2017, 23, 1150-1158.	0.4	11
63	Epitaxial Quantum Dot Superlattices: From Synthesis to Characterization to Electronic Structure. Microscopy and Microanalysis, 2017, 23, 1884-1885.	0.4	0
64	Quantitative, Real-Space Statistical Analysis of Imperfect Lattices. Microscopy and Microanalysis, 2016, 22, 892-893.	0.4	0
65	Advances in Mapping Periodic Structural Modulations of Atomic Lattices. Microscopy and Microanalysis, 2016, 22, 552-553.	0.4	0
66	Mapping Periodic Lattice Distortions in Exfoliated Dichalcogenides with Atomic Resolution cryo-STEM. Microscopy and Microanalysis, 2016, 22, 1550-1551.	0.4	0
67	Strain Accommodation and Coherency in Laterally-Stitched WSe <sub>2</sub> /WS <sub>2</sub> Junctions. Microscopy and Microanalysis, 2016, 22, 870-871.	0.4	5
68	Thickness and Stacking Sequence Determination of Exfoliated Dichalcogenides Using Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2016, 22, 1456-1457.	0.4	0
69	Imaging Local Polarization and Domain Boundaries with Picometer-Precision Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2016, 22, 898-899.	0.4	0
70	4D-STEM for Quantitative Imaging of Magnetic Materials with Enhanced Contrast and Resolution. Microscopy and Microanalysis, 2016, 22, 1718-1719.	0.4	3
71	Nanomaterial datasets to advance tomography in scanning transmission electron microscopy. Scientific Data, 2016, 3, 160041.	5.3	42
72	High Dynamic Range Pixel Array Detector for Scanning Transmission Electron Microscopy. Microscopy and Microanalysis, 2016, 22, 237-249.	0.4	334

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73	Atomic lattice disorder in charge-density-wave phases of exfoliated dichalcogenides (1T-TaS) <i>Tj ETQq1</i> 1 0.784314 <i>rgBT /Overlock 10</i> 113, 11420-11424.	7.1	86
74	Propagation of Structural Disorder in Epitaxially Connected Quantum Dot Solids from Atomic to Micron Scale. <i>Nano Letters</i> , 2016, 16, 5714-5718.	9.1	43
75	Atomically engineered ferroic layers yield a room-temperature magnetoelectric multiferroic. <i>Nature</i> , 2016, 537, 523-527.	27.8	275
76	Advanced Platform for 3D Visualization, Reconstruction, and Segmentation with Electron Tomography. <i>Microscopy and Microanalysis</i> , 2016, 22, 2070-2071.	0.4	5
77	Periodic Artifact Reduction in Fourier Transforms of Full Field Atomic Resolution Images. <i>Microscopy and Microanalysis</i> , 2015, 21, 436-441.	0.4	13
78	Nanoscale assembly processes revealed in the nacreprismatic transition zone of <i>Pinna nobilis</i> mollusc shells. <i>Nature Communications</i> , 2015, 6, 10097.	12.8	69
79	Imaging Local Polarization and Domain Boundaries in Multiferroic (LuFeO <sub>3</sub> ) <sub>m</sub> /(LuFe <sub>2</sub> O <sub>4</sub> ) <sub>n</sub> Superlattices. <i>Microscopy and Microanalysis</i> , 2015, 21, 1303-1304.	0.4	0
80	Repeatable and Transferable Processing for Electron Tomography: An Open Platform for Visualization and Reconstruction of 3D Materials. <i>Microscopy and Microanalysis</i> , 2015, 21, 2407-2408.	0.4	8
81	Lorentz-STEM imaging of Fields and Domains using a High-Speed, High-Dynamic Range Pixel Array Detector at Atomic Resolution. <i>Microscopy and Microanalysis</i> , 2015, 21, 2309-2310.	0.4	1
82	Long Range Order and Atomic Connectivity in Two-Dimensional Square PbSe Nanocrystal Superlattices. <i>Microscopy and Microanalysis</i> , 2015, 21, 1329-1330.	0.4	1
83	Multicomponent Nanomaterials with Complex Networked Architectures from Orthogonal Degradation and Binary Metal Backfilling in ABC Triblock Terpolymers. <i>Journal of the American Chemical Society</i> , 2015, 137, 6026-6033.	13.7	70
84	Hierarchically Structured Hematite Architectures Achieved by Growth in a Silica Hydrogel. <i>Journal of the American Chemical Society</i> , 2015, 137, 5184-5192.	13.7	24
85	Identical Location Transmission Electron Microscopy Imaging of Site-Selective Pt Nanocatalysts: Electrochemical Activation and Surface Disorder. <i>Journal of the American Chemical Society</i> , 2015, 137, 14992-14998.	13.7	85
86	Enhanced Supercapacitor Performance for Equal Co <sup>2+</sup> /Mn <sup>2+</sup> Stoichiometry in Colloidal Co <sub>3-x</sub> Mn <sub>x</sub> O <sub>4</sub> Nanoparticles, in Additive-Free Electrodes. <i>Chemistry of Materials</i> , 2015, 27, 7861-7873.	6.7	83
87	Structure and control of charge density waves in two-dimensional 1T-TaS <sub>2</sub> . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 15054-15059.	7.1	205
88	Three-Dimensional Arrangement and Connectivity of Lead-Chalcogenide Nanoparticle Assemblies for Next Generation Photovoltaics. <i>Microscopy and Microanalysis</i> , 2014, 20, 542-543.	0.4	2
89	Solid-Solid Phase Transformations Induced through Cation Exchange and Strain in 2D Heterostructured Copper Sulfide Nanocrystals. <i>Nano Letters</i> , 2014, 14, 7090-7099.	9.1	147
90	Nanoparticle Metamorphosis: An <i>In Situ</i> High-Temperature Transmission Electron Microscopy Study of the Structural Evolution of Heterogeneous Au:Fe <sub>2</sub> O <sub>3</sub> Nanoparticles. <i>ACS Nano</i> , 2014, 8, 5315-5322.	14.6	12

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91	Breaking the Crowther limit: Combining depth-sectioning and tilt tomography for high-resolution, wide-field 3D reconstructions. <i>Ultramicroscopy</i> , 2014, 140, 26-31.	1.9	35
92	Compressed Sensing, Sparsity, and the Reliability of Tomographic Reconstructions. <i>Microscopy and Microanalysis</i> , 2014, 20, 796-797.	0.4	4
93	Atomic Imaging Across Strain Boundaries in Bilayer Graphene with ADF-STEM and DF-TEM. <i>Microscopy and Microanalysis</i> , 2014, 20, 1058-1059.	0.4	0
94	Stacking Order Dependent Second Harmonic Generation and Topological Defects in <i>h</i> -BN Bilayers. <i>Nano Letters</i> , 2013, 13, 5660-5665.	9.1	141
95	Hierarchical Porous Polymer Scaffolds from Block Copolymers. <i>Science</i> , 2013, 341, 530-534.	12.6	257
96	Strain solitons and topological defects in bilayer graphene. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 11256-11260.	7.1	407
97	Structurally ordered intermetallic platinum-cobalt core-shell nanoparticles with enhanced activity and stability as oxygen reduction electrocatalysts. <i>Nature Materials</i> , 2013, 12, 81-87.	27.5	1,768
98	Defining Crystalline/Amorphous Phases of Nanoparticles through X-ray Absorption Spectroscopy and X-ray Diffraction: The Case of Nickel Phosphide. <i>Chemistry of Materials</i> , 2013, 25, 2394-2403.	6.7	101
99	The Open-Source Cornell Spectrum Imager. <i>Microscopy Today</i> , 2013, 21, 40-44.	0.3	7
100	Bibliometrics for Internet media: Applying the <i>h</i> -index to <i>Y</i> <i>T</i> . <i>Journal of the Association for Information Science and Technology</i> , 2013, 64, 2326-2331.	2.6	27
101	Multicompartment Mesoporous Silica Nanoparticles with Branched Shapes: An Epitaxial Growth Mechanism. <i>Science</i> , 2013, 340, 337-341.	12.6	151
102	Data Processing for Atomic Resolution Electron Energy Loss Spectroscopy. <i>Microscopy and Microanalysis</i> , 2012, 18, 667-675.	0.4	103
103	New Approaches to Data Processing for Atomic Resolution EELS. <i>Microscopy and Microanalysis</i> , 2012, 18, 970-971.	0.4	2
104	Structure-Property Relationships for Graphene Grains and Grain Boundaries. <i>Microscopy and Microanalysis</i> , 2012, 18, 1512-1513.	0.4	0
105	Running Digital Micrograph on Linux and Mac OSX. <i>Microscopy Today</i> , 2012, 20, 24-27.	0.3	3
106	Tuning Oxygen Reduction Reaction Activity via Controllable Dealloying: A Model Study of Ordered $\text{Cu}_3\text{Pt/C}$ Intermetallic Nanocatalysts. <i>Nano Letters</i> , 2012, 12, 5230-5238.	9.1	291
107	Efficient elastic imaging of single atoms on ultrathin supports in a scanning transmission electron microscope. <i>Ultramicroscopy</i> , 2012, 123, 59-65.	1.9	24
108	Three-Dimensional Tracking and Visualization of Hundreds of Pt-Co Fuel Cell Nanocatalysts During Electrochemical Aging. <i>Nano Letters</i> , 2012, 12, 4417-4423.	9.1	162

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109	Channeling of a subangstrom electron beam in a crystal mapped to two-dimensional molecular orbitals. <i>Physical Review B</i> , 2012, 86, .	3.2	23
110	Networked and chiral nanocomposites from ABC triblock terpolymer coassembly with transition metal oxide nanoparticles. <i>Journal of Materials Chemistry</i> , 2012, 22, 1078-1087.	6.7	58
111	Twinning and Twisting of Tri- and Bilayer Graphene. <i>Nano Letters</i> , 2012, 12, 1609-1615.	9.1	224
112	Direct Imaging of a Two-Dimensional Silica Glass on Graphene. <i>Nano Letters</i> , 2012, 12, 1081-1086.	9.1	236
113	Controlled Synthesis of Uniform Cobalt Phosphide Hyperbranched Nanocrystals Using Tri- <i>n</i> -octylphosphine Oxide as a Phosphorus Source. <i>Nano Letters</i> , 2011, 11, 188-197.	9.1	110
114	Surfactant Ligand Removal and Rational Fabrication of Inorganically Connected Quantum Dots. <i>Nano Letters</i> , 2011, 11, 5356-5361.	9.1	199
115	Extended Depth of Field for High-Resolution Scanning Transmission Electron Microscopy. <i>Microscopy and Microanalysis</i> , 2011, 17, 75-80.	0.4	44
116	Cornell Spectrum Imager: Open Source Spectrum Analysis with ImageJ. <i>Microscopy and Microanalysis</i> , 2011, 17, 792-793.	0.4	1
117	Determining Resolution in an Aberration-Corrected Era: Why Your Probe Is Larger Than You Thought. <i>Microscopy and Microanalysis</i> , 2010, 16, 152-153.	0.4	1
118	Electron Channeling Artifacts in Silicon [211] Using Aberration-Corrected STEM. <i>Microscopy and Microanalysis</i> , 2009, 15, 1492-1493.	0.4	1