Robert Hovden

List of Publications by Citations

117 papers	5,649 citations	33 h-index	75 g-index
125 ext. papers	6,557 ext. citations	6.6 avg, IF	5.56 L-index

#	Paper	IF	Citations
117	Structurally ordered intermetallic platinum-cobalt core-shell nanoparticles with enhanced activity and stability as oxygen reduction electrocatalysts. *Nature Materials*, **2013**, 12, 81-7	27	1467
116	Strain solitons and topological defects in bilayer graphene. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 11256-60	11.5	293
115	Atomic and electronic reconstruction at the van der Waals interface in twisted bilayer graphene. *Nature Materials*, **2019**, 18, 448-453	27	282
114	Tuning oxygen reduction reaction activity via controllable dealloying: a model study of ordered Cu3Pt/C intermetallic nanocatalysts. *Nano Letters*, **2012**, 12, 5230-8	11.5	259
113	High Dynamic Range Pixel Array Detector for Scanning Transmission Electron Microscopy. *Microscopy and Microanalysis*, **2016**, 22, 237-49	0.5	222
112	Atomically engineered ferroic layers yield a room-temperature magnetoelectric multiferroic. *Nature*, **2016**, 537, 523-7	50.4	221
111	Hierarchical porous polymer scaffolds from block copolymers. *Science*, **2013**, 341, 530-4	33.3	214
110	Direct imaging of a two-dimensional silica glass on graphene. *Nano Letters*, **2012**, 12, 1081-6	11.5	206
109	Twinning and twisting of tri- and bilayer graphene. *Nano Letters*, **2012**, 12, 1609-15	11.5	194
108	Surfactant ligand removal and rational fabrication of inorganically connected quantum dots. *Nano Letters*, **2011**, 11, 5356-61	11.5	187
107	Structure and control of charge density waves in two-dimensional 1T-TaS2. *Proceedings of the National Academy of Sciences of the United States of America*, **2015**, 112, 15054-9	11.5	151
106	Three-dimensional tracking and visualization of hundreds of Pt-Co fuel cell nanocatalysts during electrochemical aging. *Nano Letters*, **2012**, 12, 4417-23	11.5	145
105	Multicompartment mesoporous silica nanoparticles with branched shapes: an epitaxial growth mechanism. *Science*, **2013**, 340, 337-41	33.3	132
104	Solid-solid phase transformations induced through cation exchange and strain in 2D heterostructured copper sulfide nanocrystals. *Nano Letters*, **2014**, 14, 7090-9	11.5	122
103	Stacking order dependent second harmonic generation and topological defects in h-BN bilayers. *Nano Letters*, **2013**, 13, 5660-5	11.5	106
102	Controlled synthesis of uniform cobalt phosphide hyperbranched nanocrystals using tri-n-octylphosphine oxide as a phosphorus source. *Nano Letters*, **2011**, 11, 188-97	11.5	103
101	Data processing for atomic resolution electron energy loss spectroscopy. *Microscopy and Microanalysis*, **2012**, 18, 667-75	0.5	87

100	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	9.6	81
99	Identical Location Transmission Electron Microscopy Imaging of Site-Selective Pt Nanocatalysts: Electrochemical Activation and Surface Disordering. *Journal of the American Chemical Society*, **2015**, 137, 14992-8	16.4	70
98	Enhanced Supercapacitor Performance for Equal Co/Mn Stoichiometry in Colloidal Co3-xMnxO4 Nanoparticles, in Additive-Free Electrodes. *Chemistry of Materials*, **2015**, 27, 7861-7873	9.6	66
97	Atomic lattice disorder in charge-density-wave phases of exfoliated dichalcogenides (1T-TaS2). *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 11420-11424	11.5	62
96	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, 6026-33	16.4	61
95	Nanoscale assembly processes revealed in the nacroprismatic transition zone of Pinna nobilis mollusc shells. *Nature Communications*, **2015**, 6, 10097	17.4	54
94	Networked and chiral nanocomposites from ABC triblock terpolymer coassembly with transition metal oxide nanoparticles. *Journal of Materials Chemistry*, **2012**, 22, 1078-1087		52
93	Solar Water Oxidation by an InGaN Nanowire Photoanode with a Bandgap of 1.7 eV. *ACS Energy Letters*, **2018**, 3, 307-314	20.1	50
92	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	11.5	43
91	Image registration of low signal-to-noise cryo-STEM data. *Ultramicroscopy*, **2018**, 191, 56-65	3.1	39
90	Bending and breaking of stripes in a charge ordered manganite. *Nature Communications*, **2017**, 8, 1883	17.4	38
89	Extended depth of field for high-resolution scanning transmission electron microscopy. *Microscopy and Microanalysis*, **2011**, 17, 75-80	0.5	38
88	Nanomaterial datasets to advance tomography in scanning transmission electron microscopy. *Scientific Data*, **2016**, 3, 160041	8.2	36
87	Nanoscale deformation mechanics reveal resilience in nacre of Pinna nobilis shell. *Nature Communications*, **2019**, 10, 4822	17.4	35
86	Propagation of Structural Disorder in Epitaxially Connected Quantum Dot Solids from Atomic to Micron Scale. *Nano Letters*, **2016**, 16, 5714-8	11.5	34
85	High-efficiency AlGaN/GaN/AlGaN tunnel junction ultraviolet light-emitting diodes. *Photonics Research*, **2020**, 8, 331	6	33
84	Breaking the Crowther limit: combining depth-sectioning and tilt tomography for high-resolution, wide-field 3D reconstructions. *Ultramicroscopy*, **2014**, 140, 26-31	3.1	32
83	Stable Unassisted Solar Water Splitting on Semiconductor Photocathodes Protected by Multifunctional GaN Nanostructures. *ACS Energy Letters*, **2019**, 4, 1541-1548	20.1	28

82	An In0.42Ga0.58N tunnel junction nanowire photocathode monolithically integrated on a nonplanar Si wafer. *Nano Energy*, **2019**, 57, 405-413	17.1	25
81	Tutorial on the Visualization of Volumetric Data Using tomviz. *Microscopy Today*, **2018**, 26, 12-17	0.4	24
80	Hierarchically structured hematite architectures achieved by growth in a silica hydrogel. *Journal of the American Chemical Society*, **2015**, 137, 5184-92	16.4	21
79	Bibliometrics for Internet media: Applying the h-index to YouTube. *Journal of the Association for Information Science and Technology*, **2013**, 64, 2326-2331		21
78	Deep Ultraviolet Luminescence Due to Extreme Confinement in Monolayer GaN/Al(Ga)N Nanowire and Planar Heterostructures. *Nano Letters*, **2019**, 19, 7852-7858	11.5	20
77	A Single-Junction Cathodic Approach for Stable Unassisted Solar Water Splitting. *Joule*, **2019**, 3, 2444-2456	27.8	20
76	Efficient elastic imaging of single atoms on ultrathin supports in a scanning transmission electron microscope. *Ultramicroscopy*, **2012**, 123, 59-65	3.1	20
75	Channeling of a subangstrom electron beam in a crystal mapped to two-dimensional molecular orbitals. *Physical Review B*, **2012**, 86,	3.3	19
74	Magnetic frustration control through tunable stereochemically driven disorder in entropy-stabilized oxides. *Physical Review Materials*, **2019**, 3,	3.2	18
73	Physical Confinement Promoting Formation of Cu2O–Au Heterostructures with Au Nanoparticles Entrapped within Crystalline Cu2O Nanorods. *Chemistry of Materials*, **2017**, 29, 555-563	9.6	17
72	Graphene-assisted molecular beam epitaxy of AlN for AlGaN deep-ultraviolet light-emitting diodes. *Applied Physics Letters*, **2020**, 116, 171905	3.4	16
71	Stacking, strain, and twist in 2D materials quantified by 3D electron diffraction. *Physical Review Materials*, **2019**, 3,	3.2	14
70	Nanoparticle metamorphosis: an in situ high-temperature transmission electron microscopy study of the structural evolution of heterogeneous Au:Fe2O3 nanoparticles. *ACS Nano*, **2014**, 8, 5315-22	16.7	11
69	Periodic artifact reduction in Fourier transforms of full field atomic resolution images. *Microscopy and Microanalysis*, **2015**, 21, 436-41	0.5	11
68	Removing Stripes, Scratches, and Curtaining with Nonrecoverable Compressed Sensing. *Microscopy and Microanalysis*, **2019**, 25, 705-710	0.5	10
67	An AlGaN tunnel junction light emitting diode operating at 255 nm. *Applied Physics Letters*, **2020**, 117, 241101	3.4	10
66	Imaging Polarity in Two Dimensional Materials by Breaking Friedel's Law. *Ultramicroscopy*, **2020**, 215, 113019	3.1	8
65	A Simple Preparation Method for Full-Range Electron Tomography of Nanoparticles and Fine Powders. *Microscopy and Microanalysis*, **2017**, 23, 1150-1158	0.5	8

64	Sampling limits for electron tomography with sparsity-exploiting reconstructions. *Ultramicroscopy*, **2018**, 186, 94-103	3.1	7
63	Repeatable and Transferable Processing for Electron Tomography: An Open Platform for Visualization and Reconstruction of 3D Materials. *Microscopy and Microanalysis*, **2015**, 21, 2407-2408	0.5	7
62	Robotic four-dimensional pixel assembly of van der Waals solids.. *Nature Nanotechnology*, **2022**,	28.7	7
61	Thickness and Stacking Sequence Determination of Exfoliated Dichalcogenides (1T-TaS2, 2H-MoS2) Using Scanning Transmission Electron Microscopy. *Microscopy and Microanalysis*, **2018**, 24, 387-395	0.5	7
60	Electron tomography for functional nanomaterials. *MRS Bulletin*, **2020**, 45, 298-304	3.2	6
59	Twist engineering of the two-dimensional magnetism in double bilayer chromium triiodide homostructures. *Nature Physics*,	16.2	6
58	Advanced Platform for 3D Visualization, Reconstruction, and Segmentation with Electron Tomography. *Microscopy and Microanalysis*, **2016**, 22, 2070-2071	0.5	5
57	Tomviz: Open Source Platform Connecting Image Processing Pipelines to GPU Accelerated 3D Visualization. *Microscopy and Microanalysis*, **2019**, 25, 408-409	0.5	5
56	The Open-Source Cornell Spectrum Imager. *Microscopy Today*, **2013**, 21, 40-44	0.4	5
55	Strain Accommodation and Coherency in Laterally-Stitched WSe 2 /WS 2 Junctions. *Microscopy and Microanalysis*, **2016**, 22, 870-871	0.5	5
54	Optical and interface characteristics of Al0.56Ga0.44N/Al0.62Ga0.38N multiquantum wells with ~280 nm emission grown by plasma-assisted molecular beam epitaxy. *Journal of Crystal Growth*, **2019**, 508, 66-71	1.6	5
53	tomviz: Providing Advanced Electron Tomography by Streamlining Alignment, Reconstruction, and 3D Visualization. *Microscopy and Microanalysis*, **2017**, 23, 222-223	0.5	4
52	Electron overflow of AlGaN deep ultraviolet light emitting diodes. *Applied Physics Letters*, **2021**, 118, 241109	3.4	4
51	Compressed Sensing, Sparsity, and the Reliability of Tomographic Reconstructions. *Microscopy and Microanalysis*, **2014**, 20, 796-797	0.5	3
50	Aberration-Corrected STEM/EELS at Cryogenic Temperatures. *Microscopy and Microanalysis*, **2017**, 23, 428-429	0.5	3
49	Introduction to the Ronchigram and its Calculation with Ronchigram.com. *Microscopy Today*, **2019**, 27, 12-15	0.4	2
48	Optimal STEM Convergence Angle Selection Using a Convolutional Neural Network and the Strehl Ratio. *Microscopy and Microanalysis*, **2020**, 26, 921-928	0.5	2
47	Defining Theoretical Limits of Aberration-Corrected Electron Tomography: New Bounds for Resolution, Object Size, and Dose. *Microscopy and Microanalysis*, **2019**, 25, 1810-1811	0.5	2

46	Three-Dimensional Arrangement and Connectivity of Lead-Chalcogenide Nanoparticle Assemblies for Next Generation Photovoltaics. *Microscopy and Microanalysis*, **2014**, 20, 542-543	0.5	2
45	Running Digital Micrograph on Linux and Mac OSX. *Microscopy Today*, **2012**, 20, 24-27	0.4	2
44	Engineering new limits to magnetostriction through metastability in iron-gallium alloys. *Nature Communications*, **2021**, 12, 2757	17.4	2
43	4D-STEM for Quantitative Imaging of Magnetic Materials with Enhanced Contrast and Resolution. *Microscopy and Microanalysis*, **2016**, 22, 1718-1719	0.5	2
42	Heteroepitaxy of Fin-Shaped InGaN Nanoridge Using Molecular Beam Epitaxy. *Crystal Growth and Design*, **2018**, 18, 5750-5756	3.5	2
41	Limits of Three-Dimensional Resolution and Dose for Aberration-Corrected Electron Tomography. *Physical Review Applied*, **2021**, 15,	4.3	2
40	Low Temperature Electron Microscopy of Charge-Ordered Phases. *Microscopy and Microanalysis*, **2019**, 25, 934-935	0.5	1
39	Improving the Speed and Accuracy of Large-scale Scanning Transmission Electron Microscopy (STEM) Electron Scattering Simulations. *Microscopy and Microanalysis*, **2020**, 26, 456-458	0.5	1
38	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	0.5	1
37	Long Range Order and Atomic Connectivity in Two-Dimensional Square PbSe Nanocrystal Superlattices. *Microscopy and Microanalysis*, **2015**, 21, 1329-1330	0.5	1
36	New Approaches to Data Processing for Atomic Resolution EELS. *Microscopy and Microanalysis*, **2012**, 18, 970-971	0.5	1
35	Electron Channeling Artifacts in Silicon [211] Using Aberration-Corrected STEM. *Microscopy and Microanalysis*, **2009**, 15, 1492-1493	0.5	1
34	Determining Resolution in an Aberration-Corrected Era: Why Your Probe Is Larger Than You Thought. *Microscopy and Microanalysis*, **2010**, 16, 152-153	0.5	1
33	Imaging atomic-scale chemistry from fused multi-modal electron microscopy. *Npj Computational Materials*, **2022**, 8,	10.9	1
32	The mesoscale order of nacreous pearls. *Proceedings of the National Academy of Sciences of the United States of America*, **2021**, 118,	11.5	1
31	Dynamic compressed sensing for real-time tomographic reconstruction. *Ultramicroscopy*, **2020**, 219, 113122	3.2	1
30	Two-dimensional charge order stabilized in clean polytype heterostructures. *Microscopy and Microanalysis*, **2021**, 27, 896-898	0.5	1
29	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	7.4	1

28	Maximal Resolution from the Ronchigram: Human vs. Deep Learning. *Microscopy and Microanalysis*, **2019**, 25, 160-161	0.5	0
27	Removing Stripes, Scratches, and Curtaining with Non-Recoverable Compressed Sensing. *Microscopy and Microanalysis*, **2019**, 25, 174-175	0.5	0
26	Cornell Spectrum Imager: Open Source Spectrum Analysis with ImageJ. *Microscopy and Microanalysis*, **2011**, 17, 792-793	0.5	0
25	Two-dimensional charge order stabilized in clean polytype heterostructures.. *Nature Communications*, **2022**, 13, 413	17.4	0
24	Contamination of TEM Holders Quantified and Mitigated With the Open-Hardware, High-Vacuum Bakeout System. *Microscopy and Microanalysis*, **2020**, 26, 906-912	0.5	0
23	Recovering Chemistry at Atomic Resolution using Multi-Modal Spectroscopy. *Microscopy and Microanalysis*, **2021**, 27, 1226-1228	0.5	0
22	Real-Time 3D Analysis During Tomographic Experiments on tomviz. *Microscopy and Microanalysis*, **2021**, 27, 2860-2862	0.5	0
21	Nano-Mechanics Reveal Resilience in Nacre of Mollusk Shells and Pearls. *Microscopy and Microanalysis*, **2020**, 26, 104-106	0.5	
20	Epitaxial Quantum Dot Superlattices: From Synthesis to Characterization to Electronic Structure. *Microscopy and Microanalysis*, **2017**, 23, 1884-1885	0.5	
19	Image Registration of Low-Signal-to-Noise STEM Data with Open Source Software. *Microscopy and Microanalysis*, **2019**, 25, 200-201	0.5	
18	Nanoscale Deformation Processes Revealed in Nacre of Pinna nobilis Mollusk Shells. *Microscopy and Microanalysis*, **2019**, 25, 1880-1881	0.5	
17	Atomic Imaging Across Strain Boundaries in Bilayer Graphene with ADF-STEM and DF-TEM. *Microscopy and Microanalysis*, **2014**, 20, 1058-1059	0.5	
16	Mapping Picometer Scale Periodic Lattice Distortions with Aberration Corrected Scanning Transmission Electron Microscopy. *Microscopy and Microanalysis*, **2017**, 23, 420-421	0.5	
15	Emergent Phase Coherence of Stripe Order in Manganites Revealed with Cryogenic Scanning Transmission Electron Microscopy. *Microscopy and Microanalysis*, **2017**, 23, 1630-1631	0.5	
14	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	0.5	
13	Imaging Local Polarization and Domain Boundaries in Multiferroic (LuFeO3)m/(LuFe2O4)n Superlattices. *Microscopy and Microanalysis*, **2015**, 21, 1303-1304	0.5	
12	Structure-Property Relationships for Graphene Grains and Grain Boundaries. *Microscopy and Microanalysis*, **2012**, 18, 1512-1513	0.5	
11	GaN-Based Deep-Nano Structures: Break the Efficiency Bottleneck of Conventional Nanoscale Optoelectronics. *Advanced Optical Materials*,2102263	8.1	

10	Recovery of long-range order in two-dimensional charge density waves at high temperatures. *Microscopy and Microanalysis*, **2021**, 27, 952-954	0.5
9	Quantitative, Real-Space Statistical Analysis of Imperfect Lattices. *Microscopy and Microanalysis*, **2016**, 22, 892-893	0.5
8	Advances in Mapping Periodic Structural Modulations of Atomic Lattices. *Microscopy and Microanalysis*, **2016**, 22, 552-553	0.5
7	Mapping Periodic Lattice Distortions in Exfoliated Dichalchogenides with Atomic Resolution cryo-STEM. *Microscopy and Microanalysis*, **2016**, 22, 1550-1551	0.5
6	Thickness and Stacking Sequence Determination of Exfoliated Dichalchogenides Using Scanning Transmission Electron Microscopy. *Microscopy and Microanalysis*, **2016**, 22, 1456-1457	0.5
5	Imaging Local Polarization and Domain Boundaries with Picometer-Precision Scanning Transmission Electron Microscopy. *Microscopy and Microanalysis*, **2016**, 22, 898-899	0.5
4	Real-Time Tomography with Interactive 3D Visualization using tomviz. *Microscopy and Microanalysis* , **2018**, 24, 556-557	0.5
3	Tricky Registration for Unruly Data: Image Registration of Low-Signal-to-Noise Cryo-STEM Data. *Microscopy and Microanalysis*, **2018**, 24, 518-519	0.5
2	Stacking, Strain, & Stiffness of 2D Transition Metal Dichalcogenides Quantified through Reciprocal Space. *Microscopy and Microanalysis*, **2018**, 24, 1586-1587	0.5
1	Rapid Holographic Display of 3D Nanomaterials. *Microscopy and Microanalysis*, **2021**, 27, 1630-1633	0.5