

Robert Hovden

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

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	Imaging atomic-scale chemistry from fused multi-modal electron microscopy. <i>Npj Computational Materials</i> , 2022 , 8,	10.9	1
116	Robotic four-dimensional pixel assembly of van der Waals solids.. <i>Nature Nanotechnology</i> , 2022 ,	28.7	7
115	Two-dimensional charge order stabilized in clean polytype heterostructures.. <i>Nature Communications</i> , 2022 , 13, 413	17.4	0
114	The mesoscale order of nacreous pearls. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	1
113	Engineering new limits to magnetostriction through metastability in iron-gallium alloys. <i>Nature Communications</i> , 2021 , 12, 2757	17.4	2
112	Electron overflow of AlGaIn deep ultraviolet light emitting diodes. <i>Applied Physics Letters</i> , 2021 , 118, 241109	3.4	4
111	Recovering Chemistry at Atomic Resolution using Multi-Modal Spectroscopy. <i>Microscopy and Microanalysis</i> , 2021 , 27, 1226-1228	0.5	0
110	Recovery of long-range order in two-dimensional charge density waves at high temperatures. <i>Microscopy and Microanalysis</i> , 2021 , 27, 952-954	0.5	
109	Real-Time 3D Analysis During Tomographic Experiments on tomviz. <i>Microscopy and Microanalysis</i> , 2021 , 27, 2860-2862	0.5	0
108	Two-dimensional charge order stabilized in clean polytype heterostructures. <i>Microscopy and Microanalysis</i> , 2021 , 27, 896-898	0.5	1
107	Rapid Holographic Display of 3D Nanomaterials. <i>Microscopy and Microanalysis</i> , 2021 , 27, 1630-1633	0.5	
106	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	7.4	1
105	Limits of Three-Dimensional Resolution and Dose for Aberration-Corrected Electron Tomography. <i>Physical Review Applied</i> , 2021 , 15,	4.3	2
104	Nano-Mechanics Reveal Resilience in Nacre of Mollusk Shells and Pearls. <i>Microscopy and Microanalysis</i> , 2020 , 26, 104-106	0.5	
103	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	0.5	1
102	Optimal STEM Convergence Angle Selection Using a Convolutional Neural Network and the Strehl Ratio. <i>Microscopy and Microanalysis</i> , 2020 , 26, 921-928	0.5	2
101	Imaging Polarity in Two Dimensional Materials by Breaking Friedel's Law. <i>Ultramicroscopy</i> , 2020 , 215, 113019	3.1	8

100	Graphene-assisted molecular beam epitaxy of AlN for AlGa _N deep-ultraviolet light-emitting diodes. <i>Applied Physics Letters</i> , 2020 , 116, 171905	3.4	16
99	Electron tomography for functional nanomaterials. <i>MRS Bulletin</i> , 2020 , 45, 298-304	3.2	6
98	High-efficiency AlGa _N /Ga _N /AlGa _N tunnel junction ultraviolet light-emitting diodes. <i>Photonics Research</i> , 2020 , 8, 331	6	33
97	An AlGa _N tunnel junction light emitting diode operating at 255 nm. <i>Applied Physics Letters</i> , 2020 , 117, 241101	3.4	10
96	Contamination of TEM Holders Quantified and Mitigated With the Open-Hardware, High-Vacuum Bakeout System. <i>Microscopy and Microanalysis</i> , 2020 , 26, 906-912	0.5	0
95	Dynamic compressed sensing for real-time tomographic reconstruction. <i>Ultramicroscopy</i> , 2020 , 219, 113122	1.2	1
94	Maximal Resolution from the Ronchigram: Human vs. Deep Learning. <i>Microscopy and Microanalysis</i> , 2019 , 25, 160-161	0.5	0
93	Low Temperature Electron Microscopy of Charge-Ordered Phases. <i>Microscopy and Microanalysis</i> , 2019 , 25, 934-935	0.5	1
92	Deep Ultraviolet Luminescence Due to Extreme Confinement in Monolayer GaN/Al(Ga)N Nanowire and Planar Heterostructures. <i>Nano Letters</i> , 2019 , 19, 7852-7858	11.5	20
91	Introduction to the Ronchigram and its Calculation with Ronchigram.com. <i>Microscopy Today</i> , 2019 , 27, 12-15	0.4	2
90	Stable Unassisted Solar Water Splitting on Semiconductor Photocathodes Protected by Multifunctional GaN Nanostructures. <i>ACS Energy Letters</i> , 2019 , 4, 1541-1548	20.1	28
89	Atomic and electronic reconstruction at the van der Waals interface in twisted bilayer graphene. <i>Nature Materials</i> , 2019 , 18, 448-453	27	282
88	Removing Stripes, Scratches, and Curtaining with Nonrecoverable Compressed Sensing. <i>Microscopy and Microanalysis</i> , 2019 , 25, 705-710	0.5	10
87	A Single-Junction Cathodic Approach for Stable Unassisted Solar Water Splitting. <i>Joule</i> , 2019 , 3, 2444-2458	5.68	20
86	Removing Stripes, Scratches, and Curtaining with Non-Recoverable Compressed Sensing. <i>Microscopy and Microanalysis</i> , 2019 , 25, 174-175	0.5	0
85	Image Registration of Low-Signal-to-Noise STEM Data with Open Source Software. <i>Microscopy and Microanalysis</i> , 2019 , 25, 200-201	0.5	
84	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	0.5	2
83	Nanoscale Deformation Processes Revealed in Nacre of Pinna nobilis Mollusk Shells. <i>Microscopy and Microanalysis</i> , 2019 , 25, 1880-1881	0.5	

82	Tomviz: Open Source Platform Connecting Image Processing Pipelines to GPU Accelerated 3D Visualization. <i>Microscopy and Microanalysis</i> , 2019 , 25, 408-409	0.5	5
81	Nanoscale deformation mechanics reveal resilience in nacre of Pinna nobilis shell. <i>Nature Communications</i> , 2019 , 10, 4822	17.4	35
80	Stacking, strain, and twist in 2D materials quantified by 3D electron diffraction. <i>Physical Review Materials</i> , 2019 , 3,	3.2	14
79	Magnetic frustration control through tunable stereochemically driven disorder in entropy-stabilized oxides. <i>Physical Review Materials</i> , 2019 , 3,	3.2	18
78	An In _{0.42} Ga _{0.58} N tunnel junction nanowire photocathode monolithically integrated on a nonplanar Si wafer. <i>Nano Energy</i> , 2019 , 57, 405-413	17.1	25
77	Optical and interface characteristics of Al _{0.56} Ga _{0.44} N/Al _{0.62} Ga _{0.38} N multiquantum wells with ~280 nm emission grown by plasma-assisted molecular beam epitaxy. <i>Journal of Crystal Growth</i> , 2019 , 508, 66-71	1.6	5
76	Tutorial on the Visualization of Volumetric Data Using tomviz. <i>Microscopy Today</i> , 2018 , 26, 12-17	0.4	24
75	Solar Water Oxidation by an InGaN Nanowire Photoanode with a Bandgap of 1.7 eV. <i>ACS Energy Letters</i> , 2018 , 3, 307-314	20.1	50
74	Sampling limits for electron tomography with sparsity-exploiting reconstructions. <i>Ultramicroscopy</i> , 2018 , 186, 94-103	3.1	7
73	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	11.5	43
72	Image registration of low signal-to-noise cryo-STEM data. <i>Ultramicroscopy</i> , 2018 , 191, 56-65	3.1	39
71	Real-Time Tomography with Interactive 3D Visualization using tomviz. <i>Microscopy and Microanalysis</i> , 2018 , 24, 556-557	0.5	
70	Tricky Registration for Unruly Data: Image Registration of Low-Signal-to-Noise Cryo-STEM Data. <i>Microscopy and Microanalysis</i> , 2018 , 24, 518-519	0.5	
69	Stacking, Strain, & Stiffness of 2D Transition Metal Dichalcogenides Quantified through Reciprocal Space. <i>Microscopy and Microanalysis</i> , 2018 , 24, 1586-1587	0.5	
68	Heteroepitaxy of Fin-Shaped InGaN Nanoridge Using Molecular Beam Epitaxy. <i>Crystal Growth and Design</i> , 2018 , 18, 5750-5756	3.5	2
67	Thickness and Stacking Sequence Determination of Exfoliated Dichalcogenides (1T-TaS ₂ , 2H-MoS ₂) Using Scanning Transmission Electron Microscopy. <i>Microscopy and Microanalysis</i> , 2018 , 24, 387-395	0.5	7
66	Physical Confinement Promoting Formation of Cu ₂ O/Au Heterostructures with Au Nanoparticles Entrapped within Crystalline Cu ₂ O Nanorods. <i>Chemistry of Materials</i> , 2017 , 29, 555-563	9.6	17
65	Epitaxial Quantum Dot Superlattices: From Synthesis to Characterization to Electronic Structure. <i>Microscopy and Microanalysis</i> , 2017 , 23, 1884-1885	0.5	

64	Bending and breaking of stripes in a charge ordered manganite. <i>Nature Communications</i> , 2017 , 8, 1883	17.4	38
63	tomviz: Providing Advanced Electron Tomography by Streamlining Alignment, Reconstruction, and 3D Visualization. <i>Microscopy and Microanalysis</i> , 2017 , 23, 222-223	0.5	4
62	Mapping Picometer Scale Periodic Lattice Distortions with Aberration Corrected Scanning Transmission Electron Microscopy. <i>Microscopy and Microanalysis</i> , 2017 , 23, 420-421	0.5	
61	Aberration-Corrected STEM/EELS at Cryogenic Temperatures. <i>Microscopy and Microanalysis</i> , 2017 , 23, 428-429	0.5	3
60	Emergent Phase Coherence of Stripe Order in Manganites Revealed with Cryogenic Scanning Transmission Electron Microscopy. <i>Microscopy and Microanalysis</i> , 2017 , 23, 1630-1631	0.5	
59	New Full-Range Electron Tomography Procedure for Accurate Quantification of Surfaces, Curvature, and Porosity in Energy-Related Nanomaterials. <i>Microscopy and Microanalysis</i> , 2017 , 23, 2002-2003	0.5	3
58	A Simple Preparation Method for Full-Range Electron Tomography of Nanoparticles and Fine Powders. <i>Microscopy and Microanalysis</i> , 2017 , 23, 1150-1158	0.5	8
57	Propagation of Structural Disorder in Epitaxially Connected Quantum Dot Solids from Atomic to Micron Scale. <i>Nano Letters</i> , 2016 , 16, 5714-8	11.5	34
56	Atomically engineered ferroic layers yield a room-temperature magnetoelectric multiferroic. <i>Nature</i> , 2016 , 537, 523-7	50.4	221
55	Advanced Platform for 3D Visualization, Reconstruction, and Segmentation with Electron Tomography. <i>Microscopy and Microanalysis</i> , 2016 , 22, 2070-2071	0.5	5
54	Quantitative, Real-Space Statistical Analysis of Imperfect Lattices. <i>Microscopy and Microanalysis</i> , 2016 , 22, 892-893	0.5	
53	Advances in Mapping Periodic Structural Modulations of Atomic Lattices. <i>Microscopy and Microanalysis</i> , 2016 , 22, 552-553	0.5	
52	Mapping Periodic Lattice Distortions in Exfoliated Dichalcogenides with Atomic Resolution cryo-STEM. <i>Microscopy and Microanalysis</i> , 2016 , 22, 1550-1551	0.5	
51	Strain Accommodation and Coherency in Laterally-Stitched WSe ₂ /WS ₂ Junctions. <i>Microscopy and Microanalysis</i> , 2016 , 22, 870-871	0.5	5
50	Thickness and Stacking Sequence Determination of Exfoliated Dichalcogenides Using Scanning Transmission Electron Microscopy. <i>Microscopy and Microanalysis</i> , 2016 , 22, 1456-1457	0.5	
49	Imaging Local Polarization and Domain Boundaries with Picometer-Precision Scanning Transmission Electron Microscopy. <i>Microscopy and Microanalysis</i> , 2016 , 22, 898-899	0.5	
48	4D-STEM for Quantitative Imaging of Magnetic Materials with Enhanced Contrast and Resolution. <i>Microscopy and Microanalysis</i> , 2016 , 22, 1718-1719	0.5	2
47	Nanomaterial datasets to advance tomography in scanning transmission electron microscopy. <i>Scientific Data</i> , 2016 , 3, 160041	8.2	36

46	High Dynamic Range Pixel Array Detector for Scanning Transmission Electron Microscopy. <i>Microscopy and Microanalysis</i> , 2016 , 22, 237-49	0.5	222
45	Atomic lattice disorder in charge-density-wave phases of exfoliated dichalcogenides (1T-TaS ₂). <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 11420-11424	11.5	62
44	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, 6026-33	16.4	61
43	Hierarchically structured hematite architectures achieved by growth in a silica hydrogel. <i>Journal of the American Chemical Society</i> , 2015 , 137, 5184-92	16.4	21
42	Identical Location Transmission Electron Microscopy Imaging of Site-Selective Pt Nanocatalysts: Electrochemical Activation and Surface Disordering. <i>Journal of the American Chemical Society</i> , 2015 , 137, 14992-8	16.4	70
41	Enhanced Supercapacitor Performance for Equal Co/Mn Stoichiometry in Colloidal Co ₃ -xMnxO ₄ Nanoparticles, in Additive-Free Electrodes. <i>Chemistry of Materials</i> , 2015 , 27, 7861-7873	9.6	66
40	Structure and control of charge density waves in two-dimensional 1T-TaS ₂ . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015 , 112, 15054-9	11.5	151
39	Periodic artifact reduction in Fourier transforms of full field atomic resolution images. <i>Microscopy and Microanalysis</i> , 2015 , 21, 436-41	0.5	11
38	Nanoscale assembly processes revealed in the nacreprismatic transition zone of Pinna nobilis mollusc shells. <i>Nature Communications</i> , 2015 , 6, 10097	17.4	54
37	Imaging Local Polarization and Domain Boundaries in Multiferroic (LuFeO ₃) _m /(LuFe ₂ O ₄) _n Superlattices. <i>Microscopy and Microanalysis</i> , 2015 , 21, 1303-1304	0.5	
36	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	0.5	7
35	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	0.5	1
34	Long Range Order and Atomic Connectivity in Two-Dimensional Square PbSe Nanocrystal Superlattices. <i>Microscopy and Microanalysis</i> , 2015 , 21, 1329-1330	0.5	1
33	Solid-solid phase transformations induced through cation exchange and strain in 2D heterostructured copper sulfide nanocrystals. <i>Nano Letters</i> , 2014 , 14, 7090-9	11.5	122
32	Nanoparticle metamorphosis: an in situ high-temperature transmission electron microscopy study of the structural evolution of heterogeneous Au:Fe ₂ O ₃ nanoparticles. <i>ACS Nano</i> , 2014 , 8, 5315-22	16.7	11
31	Breaking the Crowther limit: combining depth-sectioning and tilt tomography for high-resolution, wide-field 3D reconstructions. <i>Ultramicroscopy</i> , 2014 , 140, 26-31	3.1	32
30	Compressed Sensing, Sparsity, and the Reliability of Tomographic Reconstructions. <i>Microscopy and Microanalysis</i> , 2014 , 20, 796-797	0.5	3
29	Atomic Imaging Across Strain Boundaries in Bilayer Graphene with ADF-STEM and DF-TEM. <i>Microscopy and Microanalysis</i> , 2014 , 20, 1058-1059	0.5	

28	Three-Dimensional Arrangement and Connectivity of Lead-Chalcogenide Nanoparticle Assemblies for Next Generation Photovoltaics. <i>Microscopy and Microanalysis</i> , 2014 , 20, 542-543	0.5	2
27	Stacking order dependent second harmonic generation and topological defects in h-BN bilayers. <i>Nano Letters</i> , 2013 , 13, 5660-5	11.5	106
26	Hierarchical porous polymer scaffolds from block copolymers. <i>Science</i> , 2013 , 341, 530-4	33.3	214
25	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, 11256-60	11.5	293
24	Structurally ordered intermetallic platinum-cobalt core-shell nanoparticles with enhanced activity and stability as oxygen reduction electrocatalysts. <i>Nature Materials</i> , 2013 , 12, 81-7	27	1467
23	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	9.6	81
22	The Open-Source Cornell Spectrum Imager. <i>Microscopy Today</i> , 2013 , 21, 40-44	0.4	5
21	Bibliometrics for Internet media: Applying the h-index to YouTube. <i>Journal of the Association for Information Science and Technology</i> , 2013 , 64, 2326-2331		21
20	Multicompartment mesoporous silica nanoparticles with branched shapes: an epitaxial growth mechanism. <i>Science</i> , 2013 , 340, 337-41	33.3	132
19	Tuning oxygen reduction reaction activity via controllable dealloying: a model study of ordered Cu ₃ Pt/C intermetallic nanocatalysts. <i>Nano Letters</i> , 2012 , 12, 5230-8	11.5	259
18	Efficient elastic imaging of single atoms on ultrathin supports in a scanning transmission electron microscope. <i>Ultramicroscopy</i> , 2012 , 123, 59-65	3.1	20
17	Three-dimensional tracking and visualization of hundreds of Pt-Co fuel cell nanocatalysts during electrochemical aging. <i>Nano Letters</i> , 2012 , 12, 4417-23	11.5	145
16	Channeling of a subangstrom electron beam in a crystal mapped to two-dimensional molecular orbitals. <i>Physical Review B</i> , 2012 , 86,	3.3	19
15	Networked and chiral nanocomposites from ABC triblock terpolymer coassembly with transition metal oxide nanoparticles. <i>Journal of Materials Chemistry</i> , 2012 , 22, 1078-1087		52
14	Twinning and twisting of tri- and bilayer graphene. <i>Nano Letters</i> , 2012 , 12, 1609-15	11.5	194
13	Direct imaging of a two-dimensional silica glass on graphene. <i>Nano Letters</i> , 2012 , 12, 1081-6	11.5	206
12	Data processing for atomic resolution electron energy loss spectroscopy. <i>Microscopy and Microanalysis</i> , 2012 , 18, 667-75	0.5	87
11	New Approaches to Data Processing for Atomic Resolution EELS. <i>Microscopy and Microanalysis</i> , 2012 , 18, 970-971	0.5	1

10	Structure-Property Relationships for Graphene Grains and Grain Boundaries. <i>Microscopy and Microanalysis</i> , 2012 , 18, 1512-1513	0.5	
9	Running Digital Micrograph on Linux and Mac OSX. <i>Microscopy Today</i> , 2012 , 20, 24-27	0.4	2
8	Surfactant ligand removal and rational fabrication of inorganically connected quantum dots. <i>Nano Letters</i> , 2011 , 11, 5356-61	11.5	187
7	Extended depth of field for high-resolution scanning transmission electron microscopy. <i>Microscopy and Microanalysis</i> , 2011 , 17, 75-80	0.5	38
6	Controlled synthesis of uniform cobalt phosphide hyperbranched nanocrystals using tri-n-octylphosphine oxide as a phosphorus source. <i>Nano Letters</i> , 2011 , 11, 188-97	11.5	103
5	Cornell Spectrum Imager: Open Source Spectrum Analysis with ImageJ. <i>Microscopy and Microanalysis</i> , 2011 , 17, 792-793	0.5	0
4	Determining Resolution in an Aberration-Corrected Era: Why Your Probe Is Larger Than You Thought. <i>Microscopy and Microanalysis</i> , 2010 , 16, 152-153	0.5	1
3	Electron Channeling Artifacts in Silicon [211] Using Aberration-Corrected STEM. <i>Microscopy and Microanalysis</i> , 2009 , 15, 1492-1493	0.5	1
2	Twist engineering of the two-dimensional magnetism in double bilayer chromium triiodide homostructures. <i>Nature Physics</i> ,	16.2	6
1	GaN-Based Deep-Nano Structures: Break the Efficiency Bottleneck of Conventional Nanoscale Optoelectronics. <i>Advanced Optical Materials</i> , 2102263	8.1	