

Armand Beche

List of Publications by Year in descending order

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Version: 2024-02-01

89
papers

3,009
citations

147801

31
h-index

168389

53
g-index

91
all docs

91
docs citations

91
times ranked

2756
citing authors

#	ARTICLE	IF	CITATIONS
1	Atomic electric fields revealed by a quantum mechanical approach to electron picodiffraction. Nature Communications, 2014, 5, 5653.	12.8	232
2	Theory and applications of free-electron vortex states. Physics Reports, 2017, 690, 1-70.	25.6	227
3	Improved precision in strain measurement using nanobeam electron diffraction. Applied Physics Letters, 2009, 95, .	3.3	144
4	Magnetic monopole field exposed by electrons. Nature Physics, 2014, 10, 26-29.	16.7	141
5	Strain measurement at the nanoscale: Comparison between convergent beam electron diffraction, nano-beam electron diffraction, high resolution imaging and dark field electron holography. Ultramicroscopy, 2013, 131, 10-23.	1.9	115
6	Measurement of atomic electric fields and charge densities from average momentum transfers using scanning transmission electron microscopy. Ultramicroscopy, 2017, 178, 62-80.	1.9	106
7	Strain mapping of semiconductor specimens with nm-scale resolution in a transmission electron microscope. Micron, 2016, 80, 145-165.	2.2	104
8	Improved strain precision with high spatial resolution using nanobeam precession electron diffraction. Applied Physics Letters, 2013, 103, .	3.3	101
9	Probing the symmetry of the potential of localized surface plasmon resonances with phase-shaped electron beams. Nature Communications, 2017, 8, 14999.	12.8	95
10	Demonstration of a 2π programmable phase plate for electrons. Ultramicroscopy, 2018, 190, 58-65.	1.9	80
11	A new way of producing electron vortex probes for STEM. Ultramicroscopy, 2012, 113, 83-87.	1.9	73
12	Exploiting Lens Aberrations to Create Electron-Vortex Beams. Physical Review Letters, 2013, 111, 064801.	7.8	72
13	A transition from local equilibrium to paraequilibrium kinetics for ferrite growth in Fe-C-Mn: A possible role of interfacial segregation. Acta Materialia, 2008, 56, 2203-2211.	7.9	69
14	3D Magnetic Induction Maps of Nanoscale Materials Revealed by Electron Holographic Tomography. Chemistry of Materials, 2015, 27, 6771-6778.	6.7	64
15	Atomistic structure of Cu-containing Fe_3 precipitates in an Al-Mg-Si-Cu alloy. Scripta Materialia, 2014, 75, 86-89.	5.2	63
16	Using electron vortex beams to determine chirality of crystals in transmission electron microscopy. Physical Review B, 2015, 91, .	3.2	62
17	3D characterization of heat-induced morphological changes of Au nanostars by fast <i>in situ</i> electron tomography. Nanoscale, 2018, 10, 22792-22801.	5.6	56
18	Dark field electron holography for quantitative strain measurements with nanometer-scale spatial resolution. Applied Physics Letters, 2009, 95, .	3.3	52

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19	Dark field electron holography for strain measurement. Ultramicroscopy, 2011, 111, 227-238.	1.9	52
20	Development of a fast electromagnetic beam blunker for compressed sensing in scanning transmission electron microscopy. Applied Physics Letters, 2016, 108, .	3.3	51
21	Dose limited reliability of quantitative annular dark field scanning transmission electron microscopy for nano-particle atom-counting. Ultramicroscopy, 2015, 151, 56-61.	1.9	47
22	Strain evolution during the silicidation of nanometer-scale SiGe semiconductor devices studied by dark field electron holography. Applied Physics Letters, 2010, 96, 113508.	3.3	42
23	Measuring the orbital angular momentum of electron beams. Physical Review A, 2014, 89, .	2.5	42
24	Phase problem in the B-site ordering of La ₂ CoMnO ₆ : impact on structure and magnetism. Nanoscale, 2015, 7, 9835-9843.	5.6	40
25	Quantifying the Solute Drag Effect of Cr on Ferrite Growth Using Controlled Decarburization Experiments. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2007, 38, 2950-2955.	2.2	37
26	Efficient creation of electron vortex beams for high resolution STEM imaging. Ultramicroscopy, 2017, 178, 12-19.	1.9	37
27	Determining oxygen relaxations at an interface: A comparative study between transmission electron microscopy techniques. Ultramicroscopy, 2017, 181, 178-190.	1.9	36
28	Event driven 4D STEM acquisition with a Timepix3 detector: Microsecond dwell time and faster scans for high precision and low dose applications. Ultramicroscopy, 2022, 233, 113423.	1.9	36
29	Strain mapping for the semiconductor industry by dark-field electron holography and nanobeam electron diffraction with nm resolution. Semiconductor Science and Technology, 2010, 25, 095012.	2.0	33
30	Chemical Transformation of Au-Tipped CdS Nanorods into AuS/Cd Core/Shell Particles by Electron Beam Irradiation. Nano Letters, 2011, 11, 4555-4561.	9.1	33
31	Novel class of nanostructured metallic glass films with superior and tunable mechanical properties. Acta Materialia, 2021, 213, 116955.	7.9	32
32	A holographic method to measure the source size broadening in STEM. Ultramicroscopy, 2012, 120, 35-40.	1.9	31
33	Quantitative strain mapping of InAs/InP quantum dots with 1â€‰nm spatial resolution using dark field electron holography. Applied Physics Letters, 2011, 99, .	3.3	30
34	3D Characterization and Plasmon Mapping of Gold Nanorods Welded by Femtosecond Laser Irradiation. ACS Nano, 2020, 14, 12558-12570.	14.6	30
35	Comparison of first moment STEM with conventional differential phase contrast and the dependence on electron dose. Ultramicroscopy, 2019, 203, 95-104.	1.9	29
36	Quantitative measurement of orbital angular momentum in electron microscopy. Physical Review A, 2014, 89, .	2.5	26

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37	Quantitative STEM normalisation: The importance of the electron flux. Ultramicroscopy, 2015, 159, 46-58.	1.9	26
38	Strain mapping for the silicon-on-insulator generation of semiconductor devices by high-angle annular dark field scanning electron transmission microscopy. Applied Physics Letters, 2012, 100, .	3.3	24
39	Shaping electron beams for the generation of innovative measurements in the (S)TEM. Comptes Rendus Physique, 2014, 15, 190-199.	0.9	24
40	Direct observation of enhanced magnetism in individual size- and shape-selected transition metal nanoparticles. Physical Review B, 2017, 95, .	3.2	24
41	Prospects for versatile phase manipulation in the TEM: Beyond aberration correction. Ultramicroscopy, 2015, 151, 85-93.	1.9	23
42	Focused electron beam induced deposition as a tool to create electron vortices. Micron, 2016, 80, 34-38.	2.2	23
43	Reducing electron beam damage through alternative STEM scanning strategies, Part I: Experimental findings. Ultramicroscopy, 2022, 232, 113398.	1.9	22
44	Field Mapping with Nanometer-Scale Resolution for the Next Generation of Electronic Devices. Nano Letters, 2011, 11, 4585-4590.	9.1	20
45	Electron Bessel beam diffraction for precise and accurate nanoscale strain mapping. Applied Physics Letters, 2019, 114, 243501.	3.3	20
46	Spectroscopic coincidence experiments in transmission electron microscopy. Applied Physics Letters, 2019, 114, .	3.3	19
47	Electron Microscopy of Probability Currents at Atomic Resolution. Physical Review Letters, 2015, 115, 176101.	7.8	17
48	Fast versus conventional HAADF-STEM tomography of nanoparticles: advantages and challenges. Ultramicroscopy, 2021, 221, 113191.	1.9	17
49	Strain mapping with nm-scale resolution for the silicon-on-insulator generation of semiconductor devices by advanced electron microscopy. Journal of Applied Physics, 2012, 112, .	2.5	16
50	Mapping electronic reconstruction at the metal-insulator interface in LaVO ₃ /SrVO ₃ heterostructures. Physical Review B, 2013, 88, .	3.2	16
51	Control of Knock-On Damage for 3D Atomic Scale Quantification of Nanostructures: Making Every Electron Count in Scanning Transmission Electron Microscopy. Physical Review Letters, 2019, 122, 066101.	7.8	14
52	Atomic-scale viscoplasticity mechanisms revealed in high ductility metallic glass films. Scientific Reports, 2019, 9, 13426.	3.3	13
53	Experimental Evaluation of Undersampling Schemes for Electron Tomography of Nanoparticles. Particle and Particle Systems Characterization, 2019, 36, 1900096.	2.3	13
54	Three-dimensional atomic structure of supported Au nanoparticles at high temperature. Nanoscale, 2021, 13, 1770-1776.	5.6	13

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55	The reduction of the substitutional C content in annealed Si/SiGeC superlattices studied by dark-field electron holography. <i>Semiconductor Science and Technology</i> , 2011, 26, 125010.	2.0	11
56	Asymmetry and non-dispersivity in the Aharonov-Bohm effect. <i>Nature Communications</i> , 2019, 10, 1700.	12.8	10
57	Strain measurement in semiconductor FinFET devices using a novel moiré demodulation technique. <i>Semiconductor Science and Technology</i> , 2020, 35, 034002.	2.0	10
58	Coincidence Detection of EELS and EDX Spectral Events in the Electron Microscope. <i>Applied Sciences (Switzerland)</i> , 2021, 11, 9058.	2.5	10
59	Evaluation of different rectangular scan strategies for STEM imaging. <i>Ultramicroscopy</i> , 2020, 215, 113021.	1.9	10
60	Symmetry-constrained electron vortex propagation. <i>Physical Review A</i> , 2016, 93, .	2.5	9
61	Locating light and heavy atomic column positions with picometer precision using ISTEM. <i>Ultramicroscopy</i> , 2017, 172, 75-81.	1.9	9
62	Improved accuracy in nano beam electron diffraction. <i>Journal of Physics: Conference Series</i> , 2010, 209, 012063.	0.4	8
63	Various Compressed Sensing Setups Evaluated Against Shannon Sampling Under Constraint of Constant Illumination. <i>IEEE Transactions on Computational Imaging</i> , 2019, 5, 502-514.	4.4	8
64	Dual Strained Channel co-integration into CMOS, RO and SRAM cells on FDSOI down to 17nm gate length. , 2010, , .		7
65	Towards rapid nanoscale measurement of strain in III-nitride heterostructures. <i>Applied Physics Letters</i> , 2013, 103, 231904.	3.3	7
66	Optimizing Experimental Conditions for Accurate Quantitative Energy-Dispersive X-ray Analysis of Interfaces at the Atomic Scale. <i>Microscopy and Microanalysis</i> , 2021, 27, 528-542.	0.4	6
67	HAADF-STEM block-scanning strategy for local measurement of strain at the nanoscale. <i>Ultramicroscopy</i> , 2020, 219, 113099.	1.9	5
68	Measuring two dimensional strain state of AlN quantum dots in GaN nanowires by nanobeam electron diffraction. <i>Journal of Physics: Conference Series</i> , 2011, 326, 012047.	0.4	4
69	Depth strain profile with sub-Ånm resolution in a thin silicon film using medium energy ion scattering. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2012, 209, 262-265.	1.8	4
70	Orthorhombic vs. hexagonal epitaxial SrIrO ₃ thin films: Structural stability and related electrical transport properties. <i>Europhysics Letters</i> , 2018, 122, 28003.	2.0	4
71	Prospects for out-of-plane magnetic field measurements through interference of electron vortex modes in the TEM. <i>Journal of Optics (United Kingdom)</i> , 2019, 21, 124002.	2.2	4
72	Reducing electron beam damage through alternative STEM scanning strategies, Part II: Attempt towards an empirical model describing the damage process. <i>Ultramicroscopy</i> , 2022, 240, 113568.	1.9	4

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73	Viability of Compressed Sensing as a Dose Reduction Strategy in STEM. <i>Microscopy and Microanalysis</i> , 2019, 25, 1686-1687.	0.4	3
74	Strain measurement for the semiconductor industry with nm-scale resolution by dark field electron holography and nanobeam electron diffraction. , 2011, , .		2
75	Strain measurement for the semiconductor industry with nm-scale resolution by dark field electron holography and nanobeam electron diffraction. <i>Journal of Physics: Conference Series</i> , 2011, 326, 012025.	0.4	2
76	Fast electron low dose tomography for beam sensitive materials. <i>Microscopy and Microanalysis</i> , 2021, 27, 2116-2118.	0.4	2
77	Nano-field mapping for the semiconductor industry. <i>Journal of Physics: Conference Series</i> , 2011, 326, 012054.	0.4	1
78	Progress in electrons vortex creation and application in a transmission electron microscope. <i>Microscopy and Microanalysis</i> , 2013, 19, 1164-1165.	0.4	1
79	Getting the Best from an Imperfect Detector - an Alternative Normalisation Procedure for Quantitative HAADF STEM. <i>Microscopy and Microanalysis</i> , 2014, 20, 126-127.	0.4	1
80	Measurement of Atomic Electric Fields by Scanning Transmission Electron Microscopy (STEM) Employing Ultrafast Detectors. <i>Microscopy and Microanalysis</i> , 2016, 22, 484-485.	0.4	1
81	Single femtosecond laser pulse excitation of individual cobalt nanoparticles. <i>Physical Review B</i> , 2020, 102, .	3.2	1
82	Evaluation of the substitutional carbon content in annealed Si/SiGeC superlattices by dark-field electron holography. <i>Journal of Physics: Conference Series</i> , 2011, 326, 012024.	0.4	0
83	Measuring Strain in AlN/GaN Superlattices and Nanowires by NanoBeam Electron Diffraction. <i>Microscopy and Microanalysis</i> , 2011, 17, 1388-1389.	0.4	0
84	Field Mapping Of Semiconductors In A State-Of-The-Art Electron Microscope. <i>AIP Conference Proceedings</i> , 2011, , .	0.4	0
85	Strain Measurement by Local Diffraction: NanoBeam Electron Diffraction (NBED) Compared to Convergent Beam (CBED) and Dark Holography. <i>Microscopy and Microanalysis</i> , 2011, 17, 1068-1069.	0.4	0
86	Annealed Si ^δ -SiGeC Superlattices Studied by Dark-Field Electron Holography, ToF-SIMS and Infrared Spectroscopy. <i>AIP Conference Proceedings</i> , 2011, , .	0.4	0
87	Quantitative annular dark field scanning transmission electron microscopy for nanoparticle atom-counting: What are the limits?. <i>Journal of Physics: Conference Series</i> , 2015, 644, 012034.	0.4	0
88	Quantification of 3D Atomic Structures and Their Dynamics by Atom-Counting from an ADF STEM Image. <i>Microscopy and Microanalysis</i> , 2019, 25, 1808-1809.	0.4	0
89	Reaching for atomic-scale quantitative energy dispersive X-ray spectroscopy. <i>Microscopy and Microanalysis</i> , 2021, 27, 2602-2603.	0.4	0