Abbas Ourmazd

List of Publications by Year
in descending order

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99 papers	8,343 citations	50244 46 h-index	48277 88 g-index
108 all docs	108 docs citations	108 times ranked	5505 citing authors

#	Article	IF	Citations
1	Scaling the Si MOSFET: from bulk to SOI to bulk. IEEE Transactions on Electron Devices, 1992, 39, 1704-1710.	1.6	757
2	Time-resolved serial crystallography captures high-resolution intermediates of photoactive yellow protein. Science, 2014, 346, 1242-1246.	6.0	418
3	Two-Dimensional Mapping of the Electrostatic Potential in Transistors by Electron Holography. Physical Review Letters, 1999, 82, 2614-2617.	2.9	349
4	Femtosecond structural dynamics drives the trans/cis isomerization in photoactive yellow protein. Science, 2016, 352, 725-729.	6.0	348
5	Structurally induced optical transitions in Ge-Si superlattices. Physical Review Letters, 1987, 58, 729-732.	2.9	339
6	Siâ†'SiO2transformation: Interfacial structure and mechanism. Physical Review Letters, 1987, 59, 213-216.	2.9	326
7	Chemical Mapping of Semiconductor Interfaces at Near-Atomic Resolution. Physical Review Letters, 1989, 62, 933-936.	2.9	306
8	Observation of Order-Disorder Transitions in Strained-Semiconductor Systems. Physical Review Letters, 1985, 55, 765-768.	2.9	260
9	A glycan gate controls opening of the SARS-CoV-2 spike protein. Nature Chemistry, 2021, 13, 963-968.	6.6	254
10	Trajectories of the ribosome as a Brownian nanomachine. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 17492-17497.	3.3	218
11	Oxygenâ€related thermal donors in silicon: A new structural and kinetic model. Journal of Applied Physics, 1984, 56, 1670-1681.	1.1	217
12	The linac coherent light source single particle imaging road map. Structural Dynamics, 2015, 2, 041701.	0.9	178
13	Does luminescence show semiconductor interfaces to be atomically smooth?. Applied Physics Letters, 1990, 56, 2666-2668.	1.5	175
14	Structure from fleeting illumination of faint spinning objects in flight. Nature Physics, 2009, 5, 64-67.	6.5	171
15	Quantitative chemical lattice imaging: theory and practice. Ultramicroscopy, 1990, 34, 237-255.	0.8	170
16	Continuous changes in structure mapped by manifold embedding of single-particle data in cryo-EM. Methods, 2016, 100, 61-67.	1.9	162
17	Geâ€Si layered structures: Artificial crystals and complex cell ordered superlattices. Applied Physics Letters, 1986, 49, 286-288.	1.5	152
18	Microstructure, oxygen ordering and planar defects in the high-Tc superconductor YBa2Cu3O6.9. Nature, 1987, 327, 308-310.	13.7	142

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19	An approach to quantitative high-resolution transmission electron microscopy of crystalline materials. Ultramicroscopy, 1995, 58, 131-155.	0.8	139
20	Enzyme intermediates captured â€œon the flyâ€•by mix-and-inject serial crystallography. BMC Biology, 2018, 16, 59.	1.7	117
21	Electronic structure of Ge/Si monolayer strained-layer superlattices. Physical Review B, 1989, 39, 3741-3757.	1.1	114
22	Phosphorus gettering and intrinsic gettering of nickel in silicon. Applied Physics Letters, 1984, 45, 781-783.	1.5	113
23	Mapping projected potential, interfacial roughness, and composition in general crystalline solids by quantitative transmission electron microscopy. Physical Review Letters, 1993, 71, 4150-4153.	2.9	111
24	Time-resolved serial femtosecond crystallography at the European XFEL. Nature Methods, 2020, 17, 73-78.	9.0	110
25	Structural enzymology using X-ray free electron lasers. Structural Dynamics, 2017, 4, 044003.	0.9	92
26	Unsupervised classification of single-particle X-ray diffraction snapshots by spectral clustering. Optics Express, 2011, 19, 16542.	1.7	91
27	High quality narrow GaInAs/InP quantum wells grown by atmospheric organometallic vapor phase epitaxy. Applied Physics Letters, 1986, 49, 1384-1386.	1.5	82
28	Detection of oxygen ordering in superconducting cuprates. Nature, 1987, 329, 425-427.	13.7	82
29	Retrieving functional pathways of biomolecules from single-particle snapshots. Nature Communications, 2020, 11, 4734.	5.8	76
30	Nonlinear diffusion in multilayered semiconductor systems. Physical Review Letters, 1989, 63, 636-639.	2.9	74
31	Determination of the atomic configuration at semiconductor interfaces. Applied Physics Letters, 1987, 50, 1417-1419.	1.5	71
32	Crystallography without crystals. I. The common-line method for assembling a three-dimensional diffraction volume from single-particle scattering. Acta Crystallographica Section A: Foundations and Advances, 2008, 64, 303-315.	0.3	71
33	Structure and optical properties of Geâ€“Si ordered superlattices. Applied Physics Letters, 1987, 50, 760-762.	1.5	66
34	Quantifying the Information Content of Lattice Images. Science, 1989, 246, 1571-1577.	6.0	65
35	Measuring properties of point defects by electron microscopy: The Ga vacancy in GaAs. Physical Review Letters, 1992, 68, 2798-2801.	2.9	65
36	Coherent diffraction of single Rice Dwarf virus particles using hard X-rays at the Linac Coherent Light Source. Scientific Data, 2016, 3, 160064.	2.4	64

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37	Conformational landscape of a virus by single-particle X-ray scattering. Nature Methods, 2017, 14, 877-881.	9.0	60
38	Native oxidation of the Si(001) surface: Evidence for an interfacial phase. Applied Physics Letters, 1991, 58, 1044-1046.	1.5	58
39	Megahertz single-particle imaging at the European XFEL. Communications Physics, 2020, 3, .	2.0	58
40	Bragg diffraction by amorphous silicon. Nature, 1987, 325, 121-125.	13.7	57
41	The symmetries of image formation by scattering I Theoretical framework. Optics Express, 2012, 20, 12799.	1.7	56
42	Coherent soft X-ray diffraction imaging of coliphage PR772 at the Linac coherent light source. Scientific Data, 2017, 4, 170079.	2.4	54
43	The electrical recombination efficiency of individual edge dislocations and stacking fault defects in n-type silicon. Physica Status Solidi A, 1979, 55, 771-784.	1.7	52
44	Submicrocrystallites and the Orientational Proximity Effect. Physical Review Letters, 1985, 55, 1599-1601.	2.9	52
45	Structure of isolated biomolecules obtained from ultrashort x-ray pulses: exploiting the symmetry of random orientations. Journal of Physics Condensed Matter, 2009, 21, 134014.	0.7	49
46	The symmetries of image formation by scattering II Applications. Optics Express, 2012, 20, 12827.	1.7	49
47	Membrane protein megahertz crystallography at the European XFEL. Nature Communications, 2019, 10, 5021.	5.8	47
48	Mapping the conformations of biological assemblies. New Journal of Physics, 2010, 12, 035007.	1.2	45
49	Dynamics from noisy data with extreme timing uncertainty. Nature, 2016, 532, 471-475.	13.7	44
50	Observation of substrate diffusion and ligand binding in enzyme crystals using high-repetition-rate mix-and-inject serial crystallography. IUCrJ, 2021, 8, 878-895.	1.0	44
51	Scaling the Si metalâ€oxideâ€semiconductor fieldâ€effect transistor into the 0.1â€Î¼m regime using vertical doping engineering. Applied Physics Letters, 1991, 59, 3315-3317.	1.5	40
52	Cryo-EM, XFELs and the structure conundrum in structural biology. Nature Methods, 2019, 16, 941-944.	9.0	40
53	Achieving accurate estimates of fetal gestational age and personalised predictions of fetal growth based on data from an international prospective cohort study: a population-based machine learning study. The Lancet Digital Health, 2020, 2, e368-e375.	5.9	40
54	Conformations of macromolecules and their complexes from heterogeneous datasets. Philosophical Transactions of the Royal Society B: Biological Sciences, 2014, 369, 20130567.	1.8	39

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55	Direct Resolution and Identification of the Sublattices in Compound Semiconductors by High-Resolution Transmission Electron Microscopy. Physical Review Letters, 1986, 57, 3073-3076.	2.9	37
56	Effect of processing on the structure of the Si/SiO2interface. Applied Physics Letters, 1988, 53, 743-745.	1.5	36
57	Evaluation of the performance of classification algorithms for XFEL single-particle imaging data. IUCrJ, 2019, 6, 331-340.	1.0	36
58	Molecular structure determination from x-ray scattering patterns of laser-aligned symmetric-top molecules. Journal of Chemical Physics, 2009, 131, 131101.	1.2	35
59	Few-fs resolution of a photoactive protein traversing a conical intersection. Nature, 2021, 599, 697-701.	13.7	33
60	High-resolution structure of viruses from random diffraction snapshots. Philosophical Transactions of the Royal Society B: Biological Sciences, 2014, 369, 20130326.	1.8	32
61	Molecular beam epitaxial growth of IIâ€“V semiconductor Zn3As2 and IIâ€“IVâ€“V chalcopyrite ZnGeAs2. Journal of Crystal Growth, 1987, 81, 530-535.	0.7	31
62	Dark-field electron microscopy of dissociated dislocations and surface steps in silicon using forbidden reflections. Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties, 1983, 48, 139-153.	0.7	30
63	Lattice and atomic structure imaging of semiconductors by high resolution transmission electron microscopy. Applied Physics Letters, 1985, 47, 685-688.	1.5	30
64	Semiconductor interfaces: Abruptness, smoothness, and optical properties. Journal of Crystal Growth, 1989, 98, 72-81.	0.7	29
65	The case for data science in experimental chemistry: examples and recommendations. Nature Reviews Chemistry, 2022, 6, 357-370.	13.8	29
66	Molecular beam epitaxial growth of the IIâ€V semiconductor compound Zn3As2. Applied Physics Letters, 1986, 49, 1665-1667.	1.5	28
67	Interaction of energetic ions with inhomogeneous solids. Physical Review Letters, 1991, 67, 843-846.	2.9	28
68	Direct imaging of Î´â€doped layers in GaAs. Applied Physics Letters, 1990, 56, 854-856.	1.5	27
69	89-GHz f/sub T/ room-temperature silicon MOSFETs. IEEE Electron Device Letters, 1992, 13, 256-258.	2.2	27
70	Propagation of Conformational Coordinates Across Angular Space in Mapping the Continuum of States from Cryo-EM Data by Manifold Embedding. Journal of Chemical Information and Modeling, 2020, 60, 2484-2491.	2.5	27
71	Multilayers as Microlabs for Point Defects: Effect of Strain on Diffusion in Semiconductors. Physical Review Letters, 1994, 73, 448-451.	2.9	26
72	Structural biology is solved â€” now what?. Nature Methods, 2022, 19, 24-26.	9.0	26

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73	Observation of (5Ã—5) Surface Reconstruction on Pure Silicon and its Stability Against Native-Oxide Formation. Physical Review Letters, 1986, 57, 1332-1335.	2.9	25
74	Bayesian algorithms for recovering structure from single-particle diffraction snapshots of unknown orientation: a comparison. Acta Crystallographica Section A: Foundations and Advances, 2011, 67, 481-486.	0.3	25
75	Science in the age of machine learning. Nature Reviews Physics, 2020, 2, 342-343.	11.9	24
76	The electrical properties of dislocations in semiconductors. Contemporary Physics, 1984, 25, 251-268.	0.8	19
77	Chemical mapping and its application to interfaces, point defects and materials processing. Materials Science and Engineering Reports, 1993, 9, 201-250.	5.8	19
78	Magnetic microstructure and flux dynamics of high-Tcsuperconductors. Physical Review B, 1987, 36, 8914-8917.	1.1	18
79	Ourmazd and Cunningham reply. Physical Review Letters, 1990, 65, 2318-2318.	2.9	18
80	Quantitative chemical mapping: Spatial resolution. Ultramicroscopy, 1992, 47, 167-172.	0.8	17
81	Single-particle structure determination by X-ray free-electron lasers: Possibilities and challenges. Structural Dynamics, 2015, 2, 041601.	0.9	17
82	Electronic structure of oxygen thermal donors in silicon. Applied Physics Letters, 1985, 46, 559-561.	1.5	13
83	Structural characterization of Ba2YCu3O7 by high resolution transmission electron microscopy. Journal of Electron Microscopy Technique, 1988, 8, 251-262.	1.1	13
84	Co-flow injection for serial crystallography at X-ray free-electron lasers. Journal of Applied Crystallography, 2022, 55, 1-13.	1.9	12
85	Laser control over the ultrafast Coulomb explosion of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>N</mml:mi><mml:mn>2</mml:mn></mml:msub /><mml:mrow><mml:mn>2</mml:mn><mml:mo>+</mml:mo></mml:mrow></mml:msup></mml:mrow></mml:math> after Auger decay: A quantum-dynamics investigation. Physical Review A, 2017, 95, .	1.0	11
86	Spatiotemporal Pattern Extraction by Spectral Analysis of Vector-Valued Observables. Journal of Nonlinear Science, 2019, 29, 2385-2445.	1.0	11
87	Embedding classical dynamics in a quantum computer. Physical Review A, 2022, 105, .	1.0	10
88	Two-Dimensional Mapping of pn Junctions by Electron Holography. Physica Status Solidi (B): Basic Research, 2000, 222, 213-217.	0.7	9
89	Energy landscape of the SARS-CoV-2 reveals extensive conformational heterogeneity. Current Research in Structural Biology, 2022, 4, 68-77.	1.1	8
90	A theoretical interpretation of the electrical behaviour of individual edge dislocations in Si as determined by combined EBIC/TEM studies. Crystal Research and Technology: Journal of Experimental and Industrial Crystallography, 1981, 16, 137-146.	0.3	7

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91	Selecting XFEL single-particle snapshots by geometric machine learning. Structural Dynamics, 2021, 8, 014701.	0.9	7
92	Diffraction data from aerosolized Coliphage PR772 virus particles imaged with the Linac Coherent Light Source. Scientific Data, 2020, 7, 404.	2.4	6
93	Free-electron laser data for multiple-particle fluctuation scattering analysis. Scientific Data, 2018, 5, 180201.	2.4	6
94	The strain of it all. Nature Nanotechnology, 2008, 3, 381-382.	15.6	5
95	A New Approach to Signal Processing of Spatiotemporal Data. , 2018, , .		2
96	CHAPTER 22. Machine-learning Routes to Dynamics, Thermodynamics and Work Cycles of Biological Nanomachines. RSC Energy and Environment Series, 0, , 418-433.	0.2	2
97	Trajectories of the ribosome as a Brownian nanomachine. journal of hand surgery Asian-Pacific volume, The, 2018, , 463-475.	0.2	2
98	Preface for Special Issue on Biology with X-ray Lasers 2. Structural Dynamics, 2015, 2, 041501.	0.9	1
99	From Static Structures to Continuous Conformational Changes on the Energy Landscapes. Microscopy and Microanalysis, 2020, 26, 1614-1615.	0.2	0