

Piero Pianetta

List of Publications by Year in descending order

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112
papers

5,637
citations

71102

41
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79698

73
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113
all docs

113
docs citations

113
times ranked

6069
citing authors

#	ARTICLE	IF	CITATIONS
1	Photon-enhanced thermionic emission for solar concentrator systems. <i>Nature Materials</i> , 2010, 9, 762-767.	27.5	442
2	Three-dimensional imaging of chemical phase transformations at the nanoscale with full-field transmission X-ray microscopy. <i>Journal of Synchrotron Radiation</i> , 2011, 18, 773-781.	2.4	228
3	High-Voltage Charging-Induced Strain, Heterogeneity, and Micro-Cracks in Secondary Particles of a Nickel-Rich Layered Cathode Material. <i>Advanced Functional Materials</i> , 2019, 29, 1900247.	14.9	219
4	<i>TXM-Wizard</i> : a program for advanced data collection and evaluation in full-field transmission X-ray microscopy. <i>Journal of Synchrotron Radiation</i> , 2012, 19, 281-287.	2.4	217
5	Determination of the bonding of alkyl monolayers to the Si(111) surface using chemical-shift, scanned-energy photoelectron diffraction. <i>Applied Physics Letters</i> , 1997, 71, 1056-1058.	3.3	209
6	Elemental Compositions of Comet 81P/Wild 2 Samples Collected by Stardust. <i>Science</i> , 2006, 314, 1731-1735.	12.6	200
7	Quantification of Heterogeneous Degradation in Li-Ion Batteries. <i>Advanced Energy Materials</i> , 2019, 9, 1900674.	19.5	176
8	Chemomechanical interplay of layered cathode materials undergoing fast charging in lithium batteries. <i>Nano Energy</i> , 2018, 53, 753-762.	16.0	173
9	Alkyl-terminated Si(111) surfaces: A high-resolution, core level photoelectron spectroscopy study. <i>Journal of Applied Physics</i> , 1999, 85, 213-221.	2.5	167
10	Nanoscale Morphological and Chemical Changes of High Voltage Lithium-Manganese Rich NMC Composite Cathodes with Cycling. <i>Nano Letters</i> , 2014, 14, 4334-4341.	9.1	163
11	In situ Visualization of State-of-Charge Heterogeneity within a LiCoO ₂ Particle that Evolves upon Cycling at Different Rates. <i>ACS Energy Letters</i> , 2017, 2, 1240-1245.	17.4	159
12	Microgravity Induces Pelvic Bone Loss through Osteoclastic Activity, Osteocytic Osteolysis, and Osteoblastic Cell Cycle Inhibition by CDKN1a/p21. <i>PLoS ONE</i> , 2013, 8, e61372.	2.5	148
13	Machine-learning-revealed statistics of the particle-carbon/binder detachment in lithium-ion battery cathodes. <i>Nature Communications</i> , 2020, 11, 2310.	12.8	143
14	Aerogel keystones: Extraction of complete hypervelocity impact events from aerogel collectors. <i>Meteoritics and Planetary Science</i> , 2004, 39, 1375-1386.	1.6	100
15	Photoemission study of Cs-NF ₃ activated GaAs(100) negative electron affinity photocathodes. <i>Applied Physics Letters</i> , 2008, 92, .	3.3	98
16	Hard X-ray Nanotomography of Catalytic Solids at Work. <i>Angewandte Chemie - International Edition</i> , 2012, 51, 11986-11990.	13.8	96
17	Operando Revealing Dynamic Reconstruction of NiCo Carbonate Hydroxide for High-Rate Energy Storage. <i>Joule</i> , 2020, 4, 673-687.	24.0	88
18	Dynamics of particle network in composite battery cathodes. <i>Science</i> , 2022, 376, 517-521.	12.6	86

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19	Radical oxidation of germanium for interface gate dielectric GeO ₂ formation in metal-insulator-semiconductor gate stack. <i>Journal of Applied Physics</i> , 2009, 106, .	2.5	80
20	Transmission X-ray microscopy for full-field nano imaging of biomaterials. <i>Microscopy Research and Technique</i> , 2011, 74, 671-681.	2.2	80
21	Understanding the Effect of Local Short-Range Ordering on Lithium Diffusion in Li _{1.3} Nb _{0.3} Mn _{0.4} O ₂ Single-Crystal Cathode. <i>CheM</i> , 2018, 4, 2108-2123.	11.7	80
22	Nanoscale X-Ray Microscopic Imaging of Mammalian Mineralized Tissue. <i>Microscopy and Microanalysis</i> , 2010, 16, 327-336.	0.4	79
23	Mutual modulation between surface chemistry and bulk microstructure within secondary particles of nickel-rich layered oxides. <i>Nature Communications</i> , 2020, 11, 4433.	12.8	78
24	Hierarchical Defect Engineering for LiCoO ₂ through Low-Solubility Trace Element Doping. <i>CheM</i> , 2020, 6, 2759-2769.	11.7	74
25	Comparison of SOFC cathode microstructure quantified using X-ray nanotomography and focused ion beam scanning electron microscopy. <i>Electrochemistry Communications</i> , 2011, 13, 586-589.	4.7	72
26	3D elemental sensitive imaging using transmission X-ray microscopy. <i>Analytical and Bioanalytical Chemistry</i> , 2012, 404, 1297-1301.	3.7	63
27	Structural information on Y ions in C82 from EXAFS experiments. <i>Chemical Physics Letters</i> , 1993, 213, 196-201.	2.6	61
28	Three-dimensional mapping of nickel oxidation states using full field x-ray absorption near edge structure nanotomography. <i>Applied Physics Letters</i> , 2011, 98, .	3.3	60
29	Photoemission studies of passivation of germanium nanowires. <i>Applied Physics Letters</i> , 2005, 87, 263109.	3.3	59
30	Propagation topography of redox phase transformations in heterogeneous layered oxide cathode materials. <i>Nature Communications</i> , 2018, 9, 2810.	12.8	59
31	Mesoscale Battery Science: The Behavior of Electrode Particles Caught on a Multispectral X-ray Camera. <i>Accounts of Chemical Research</i> , 2018, 51, 2484-2492.	15.6	58
32	Electron scattering study within the depletion region of the GaN(0001) and the GaAs(100) surface. <i>Applied Physics Letters</i> , 2004, 85, 1541-1543.	3.3	55
33	Formation of (Functionalized) Monolayers and Simultaneous Surface Patterning by Scribing Silicon in the Presence of Alkyl Halides. <i>Chemistry of Materials</i> , 2002, 14, 27-29.	6.7	54
34	Using X-ray Microscopy and Hg L ₃ XANES To Study Hg Binding in the Rhizosphere of <i>Spartina</i> Cordgrass. <i>Environmental Science & Technology</i> , 2009, 43, 7397-7402.	10.0	52
35	Optimized cleaning method for producing device quality InP(100) surfaces. <i>Journal of Applied Physics</i> , 2005, 97, 124902.	2.5	51
36	Hafnium oxide/germanium oxynitride gate stacks on germanium: Capacitance scaling and interface state density. <i>Applied Physics Letters</i> , 2009, 94, .	3.3	50

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37	Surface-to-Bulk Redox Coupling through Thermally Driven Li Redistribution in Li- and Mn-Rich Layered Cathode Materials. <i>Journal of the American Chemical Society</i> , 2019, 141, 12079-12086.	13.7	47
38	Device quality Sb-based compound semiconductor surface: A comparative study of chemical cleaning. <i>Journal of Applied Physics</i> , 2011, 109, .	2.5	45
39	Characterization of arsenic dose loss at the Si/SiO ₂ interface. <i>Journal of Applied Physics</i> , 2000, 87, 2255-2260.	2.5	44
40	Chemical Bonding, Interfaces, and Defects in Hafnium Oxide•Germanium Oxynitride Gate Stacks on Ge(100). <i>Journal of the Electrochemical Society</i> , 2008, 155, G304.	2.9	44
41	The plastic nature of the human bone•“periodontal ligament•“tooth fibrous joint. <i>Bone</i> , 2013, 57, 455-467.	2.9	44
42	Finding a Needle in the Haystack: Identification of Functionally Important Minority Phases in an Operating Battery. <i>Nano Letters</i> , 2017, 17, 7782-7788.	9.1	42
43	Understanding the Mesoscale Degradation in Nickel-Rich Cathode Materials through Machine-Learning-Revealed Strain•“Redox Decoupling. <i>ACS Energy Letters</i> , 2021, 6, 687-693.	17.4	42
44	Selective dopant segregation modulates mesoscale reaction kinetics in layered transition metal oxide. <i>Nano Energy</i> , 2021, 84, 105926.	16.0	42
45	Chemical states and electrical properties of a high-k metal oxide/silicon interface with oxygen-gettering titanium-metal-overlayer. <i>Applied Physics Letters</i> , 2006, 89, 142912.	3.3	40
46	Phase retrieval using polychromatic illumination for transmission X-ray microscopy. <i>Optics Express</i> , 2011, 19, 540.	3.4	40
47	Arsenic-dominated chemistry in the acid cleaning of InGaAs and InAlAs surfaces. <i>Applied Physics Letters</i> , 2008, 93, 194103.	3.3	39
48	Thermally driven mesoscale chemomechanical interplay in Li _{0.5} Ni _{0.6} Mn _{0.2} Co _{0.2} O ₂ cathode materials. <i>Journal of Materials Chemistry A</i> , 2018, 6, 23055-23061.	10.3	38
49	To get the most out of high resolution X-ray tomography: A review of the post-reconstruction analysis. <i>Spectrochimica Acta, Part B: Atomic Spectroscopy</i> , 2016, 117, 29-41.	2.9	37
50	Schottky barrier height reduction for metal/n-GaSb contact by inserting TiO ₂ interfacial layer with low tunneling resistance. <i>Applied Physics Letters</i> , 2011, 98, .	3.3	34
51	Interface Engineering for Atomic Layer Deposited Alumina Gate Dielectric on SiGe Substrates. <i>ACS Applied Materials & Interfaces</i> , 2016, 8, 19110-19118.	8.0	34
52	Depth-dependent valence stratification driven by oxygen redox in lithium-rich layered oxide. <i>Nature Communications</i> , 2020, 11, 6342.	12.8	34
53	Extended depth of focus for transmission x-ray microscope. <i>Optics Letters</i> , 2012, 37, 3708.	3.3	33
54	Thermal-healing of lattice defects for high-energy single-crystalline battery cathodes. <i>Nature Communications</i> , 2022, 13, 704.	12.8	33

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55	The role of structural defects in commercial lithium-ion batteries. Cell Reports Physical Science, 2021, 2, 100554.	5.6	32
56	A comparison of LEED intensity data from chemically polished and cleaved GaAs(110) surfaces. Surface Science, 1977, 69, 735-740.	1.9	30
57	Roles of oxygen and water vapor in the oxidation of halogen terminated Ge(111) surfaces. Applied Physics Letters, 2006, 89, 231925.	3.3	30
58	Multiphase, Multiscale Chemomechanics at Extreme Low Temperatures: Battery Electrodes for Operation in a Wide Temperature Range. Advanced Energy Materials, 2021, 11, 2102122.	19.5	27
59	Structural and chemical evolution in layered oxide cathodes of lithium-ion batteries revealed by synchrotron techniques. National Science Review, 2022, 9, nwab146.	9.5	27
60	3D nanoscale imaging of the yeast, Schizosaccharomyces pombe, by full-field transmission X-ray microscopy at 5.4ÅkeV. Analytical and Bioanalytical Chemistry, 2010, 397, 2117-2121.	3.7	24
61	Automatic projection image registration for nanoscale X-ray tomographic reconstruction. Journal of Synchrotron Radiation, 2018, 25, 1819-1826.	2.4	23
62	Surface Photovoltage-Induced Ultralow Work Function Material for Thermionic Energy Converters. ACS Energy Letters, 2019, 4, 2436-2443.	17.4	23
63	Reaction Mechanism, Bonding, and Thermal Stability of 1-Alkanethiols Self-Assembled on Halogenated Ge Surfaces. Langmuir, 2010, 26, 8419-8429.	3.5	22
64	Molybdenum-silicon multilayer monochromator for the extreme ultraviolet. Applied Physics Letters, 1987, 50, 1841-1843.	3.3	21
65	Registration of the rotation axis in X-ray tomography. Journal of Synchrotron Radiation, 2015, 22, 452-457.	2.4	19
66	Fast Li Plating Behavior Probed by X-ray Computed Tomography. Nano Letters, 2021, 21, 5254-5261.	9.1	19
67	CsBr photocathode at 257nm: A rugged high current density electron source. Applied Physics Letters, 2006, 89, 111114.	3.3	18
68	Correlation of local structure and electrical activation in arsenic ultrashallow junctions in silicon. Journal of Applied Physics, 2008, 104, .	2.5	18
69	Nanoscale Examination of Microdamage in Sheep Cortical Bone Using Synchrotron Radiation Transmission X-Ray Microscopy. PLoS ONE, 2013, 8, e57942.	2.5	18
70	Structural studies of ultrathin zirconia dielectrics. Philosophical Magazine Letters, 2002, 82, 519-528.	1.2	16
71	Photoelectron Spectroscopy to Probe the Mechanism of Electron Transfer through Oligo(phenylene) Tj ETQq1 1 0.784314 rgBT /Over	2.6	15
72	High current density GaN-silicon heterojunction photocathode with improved photoyield. Applied Physics Letters, 2007, 90, 231115.	3.3	15

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73	Electron sources utilizing thin CsBr coatings. <i>Microelectronic Engineering</i> , 2009, 86, 529-531.	2.4	15
74	Intensity modulation of the Shirley background of the Cr 3 <i>p</i> spectra with photon energies around the Cr 2 <i>p</i> edge. <i>Surface and Interface Analysis</i> , 2018, 50, 246-252.	1.8	15
75	Understanding multi-scale battery degradation with a macro-to-nano zoom through its hierarchy. <i>Journal of Materials Chemistry A</i> , 2021, 9, 19886-19893.	10.3	14
76	Machine-and-data intelligence for synchrotron science. <i>Nature Reviews Physics</i> , 2021, 3, 766-768.	26.6	14
77	Photocathode device using diamondoid and cesium bromide films. <i>Applied Physics Letters</i> , 2012, 101, 241605.	3.3	13
78	Three-dimensional microstructural mapping of poisoning phases in the Neodymium Nickelate solid oxide fuel cell cathode. <i>Solid State Ionics</i> , 2013, 237, 16-21.	2.7	12
79	Quantifying redox heterogeneity in single-crystalline LiCoO ₂ cathode particles. <i>Journal of Synchrotron Radiation</i> , 2020, 27, 713-719.	2.4	12
80	Experimental verification of the 3-step model of photoemission for energy spread and emittance measurements of copper and CsBr-coated copper photocathodes suitable for free electron laser applications. <i>Applied Physics Letters</i> , 2012, 101, .	3.3	11
81	Analysis of Cathodic Reaction Process of SiCl ₄ during Si Electrodeposition in Ionic Liquids. <i>Journal of the Electrochemical Society</i> , 2017, 164, D994-D998.	2.9	11
82	Automatic 3D image registration for nano-resolution chemical mapping using synchrotron spectro-tomography. <i>Journal of Synchrotron Radiation</i> , 2021, 28, 278-282.	2.4	11
83	Angular dependence of the photoelectron energy distribution of InP(100) and GaAs(100) negative electron affinity photocathodes. <i>Applied Physics Letters</i> , 2007, 91, .	3.3	9
84	Deep-learning-based image registration for nano-resolution tomographic reconstruction. <i>Journal of Synchrotron Radiation</i> , 2021, 28, 1909-1915.	2.4	9
85	Deep Learning Enabled Crack Detection and Analysis in Commercial Lithium-Ion Battery Cathodes. <i>Advanced Functional Materials</i> , 2022, 32, .	14.9	9
86	The effects of wet surface clean and in situ interlayer on In _{0.52} Al _{0.48} As metal-oxide-semiconductor characteristics. <i>Applied Physics Letters</i> , 2010, 96, 142906.	3.3	8
87	Probing lattice defects in crystalline battery cathode using hard X-ray nanoprobe with data-driven modeling. <i>Energy Storage Materials</i> , 2022, 45, 647-655.	18.0	7
88	Hard X-ray Full Field Nano-imaging of Bone and Nanowires at SSRL. <i>AIP Conference Proceedings</i> , 2010, 1234, 79-82.	0.4	6
89	Comparison of X-ray Nanotomography and FIB-SEM in Quantifying the Composite LSM/YSZ SOFC Cathode Microstructure. <i>ECS Transactions</i> , 2011, 35, 2417-2421.	0.5	6
90	Characterization of electronic structure of periodically strained graphene. <i>Applied Physics Letters</i> , 2015, 107, .	3.3	6

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91	Three-dimensional mapping of crystalline ceramic waste form materials. <i>Journal of the American Ceramic Society</i> , 2017, 100, 3722-3735.	3.8	6
92	Determination of copper nanoparticle size distributions with total reflection X-ray fluorescence spectroscopy. <i>Journal of Synchrotron Radiation</i> , 2017, 24, 283-287.	2.4	6
93	In situ visualization of multicomponents coevolution in a battery pouch cell. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	7.1	6
94	Data-Driven Lithium-Ion Battery Cathode Research with State-of-the-Art Synchrotron X-ray Techniques. <i>Accounts of Materials Research</i> , 2022, 3, 854-865.	11.7	6
95	Imaging bandpass analyzer using double 90° spherical analyzers. <i>Review of Scientific Instruments</i> , 1993, 64, 1187-1193.	1.3	5
96	High-Sensitivity Total Reflection X-Ray Fluorescence Spectroscopy of Silicon Wafers Using Synchrotron Radiation.. <i>Analytical Sciences</i> , 1995, 11, 515-518.	1.6	5
97	Microscopic chemical state identification of a silicon-carbide fiber by soft x-ray photoabsorption spectroscopy. <i>Applied Physics Letters</i> , 1997, 70, 2389-2391.	3.3	5
98	Formation of arsenolite crystals at room temperature after very high dose arsenic implantation in silicon. <i>Applied Physics Letters</i> , 2012, 101, .	3.3	5
99	Room temperature photo-oxidation of NH ₄ F-prepared H ⁺ Si(111)(1Å-1) and H ⁺ Si(100). <i>Journal of Applied Physics</i> , 2004, 96, 6851-6858.	2.5	4
100	Evidence for [1s2p]3pshake-up channels in compounds and oxides of third-period elements. <i>Physical Review B</i> , 1996, 53, 15571-15576.	3.2	3
101	Mercury transformations in chemical agent simulant as characterized by X-ray absorption fine spectroscopy. <i>Talanta</i> , 2005, 67, 730-735.	5.5	3
102	Construction of a new imaging bandpass analyzer for a magnetic projection photoelectron microscope. <i>Review of Scientific Instruments</i> , 1995, 66, 3159-3167.	1.3	1
103	Oxygen Transfer from Metal Gate to High-k Gate Dielectric Stack: Interface Structure & Property Changes. <i>ECS Transactions</i> , 2007, 11, 213-218.	0.5	1
104	Analytical methods for discriminating stardust in aerogel capture media. <i>Powder Diffraction</i> , 2008, 23, 81-86.	0.2	1
105	The dependence of the oxidation enhancement of InP(100) surface on the coverage of the adsorbed Cs. <i>Journal of Applied Physics</i> , 2010, 107, 124904.	2.5	1
106	3D Imaging of Nickel Oxidation States using Full Field X-ray Absorption Near Edge Structure Nanotomography. <i>ECS Transactions</i> , 2011, 35, 1315-1321.	0.5	1
107	LBNL/SLAC Conference Looks at New Aspects of Photoemission with Hard X-rays. <i>Synchrotron Radiation News</i> , 2018, 31, 12-15.	0.8	1
108	Can studies of the II-VIs profit from the use of synchrotron radiation and the DOE financial support thereof?. <i>Journal of Electronic Materials</i> , 1999, 28, 804-809.	2.2	0

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109	Synchrotron radiation instrumentation conference. Synchrotron Radiation News, 2000, 13, 5-10.	0.8	0
110	Fabrication and Characterization of Ultra-Small Polycrystalline Silicon Islands for Advanced Multi-Level Silicon-On-Insulator Applications. Solid State Phenomena, 2003, 93, 441-446.	0.3	0
111	Simultaneous three-dimensional elemental mapping of Hollandite and Pyrochlore material phases in ceramic waste form materials. Journal of the American Ceramic Society, 2019, 102, 5620-5631.	3.8	0
112	Novel Ultrabright and Air-Stable Photocathodes Discovered from Machine Learning and Density Functional Theory Driven Screening (Adv. Mater. 44/2021). Advanced Materials, 2021, 33, 2170348.	21.0	0