

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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all docs

113
docs citations

113
times ranked

6069
citing authors

#	ARTICLE	IF	CITATIONS
1	Structural and chemical evolution in layered oxide cathodes of lithium-ion batteries revealed by synchrotron techniques. <i>National Science Review</i> , 2022, 9, nwab146.	9.5	27
2	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
3	Thermal-healing of lattice defects for high-energy single-crystalline battery cathodes. <i>Nature Communications</i> , 2022, 13, 704.	12.8	33
4	Dynamics of particle network in composite battery cathodes. <i>Science</i> , 2022, 376, 517-521.	12.6	86
5	Deep Learning Enabled Crack Detection and Analysis in Commercial Lithium Ion Battery Cathodes. <i>Advanced Functional Materials</i> , 2022, 32, .	14.9	9
6	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
7	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
8	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
9	Selective dopant segregation modulates mesoscale reaction kinetics in layered transition metal oxide. <i>Nano Energy</i> , 2021, 84, 105926.	16.0	42
10	Fast Li Plating Behavior Probed by X-ray Computed Tomography. <i>Nano Letters</i> , 2021, 21, 5254-5261.	9.1	19
11	Multiphase, Multiscale Chemomechanics at Extreme Low Temperatures: Battery Electrodes for Operation in a Wide Temperature Range. <i>Advanced Energy Materials</i> , 2021, 11, 2102122.	19.5	27
12	The role of structural defects in commercial lithium-ion batteries. <i>Cell Reports Physical Science</i> , 2021, 2, 100554.	5.6	32
13	Deep-learning-based image registration for nano-resolution tomographic reconstruction. <i>Journal of Synchrotron Radiation</i> , 2021, 28, 1909-1915.	2.4	9
14	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
15	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
16	Novel Ultrabright and Air-Stable Photocathodes Discovered from Machine Learning and Density Functional Theory Driven Screening (<i>Adv. Mater.</i> 44/2021). <i>Advanced Materials</i> , 2021, 33, 2170348.	21.0	0
17	Machine-and-data intelligence for synchrotron science. <i>Nature Reviews Physics</i> , 2021, 3, 766-768.	26.6	14
18	Hierarchical Defect Engineering for LiCoO ₂ through Low-Solubility Trace Element Doping. <i>CheM</i> , 2020, 6, 2759-2769.	11.7	74

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19	Quantifying redox heterogeneity in single-crystalline LiCoO_2 cathode particles. Journal of Synchrotron Radiation, 2020, 27, 713-719.	2.4	12
20	Mutual modulation between surface chemistry and bulk microstructure within secondary particles of nickel-rich layered oxides. Nature Communications, 2020, 11, 4433.	12.8	78
21	Depth-dependent valence stratification driven by oxygen redox in lithium-rich layered oxide. Nature Communications, 2020, 11, 6342.	12.8	34
22	Machine-learning-revealed statistics of the particle-carbon/binder detachment in lithium-ion battery cathodes. Nature Communications, 2020, 11, 2310.	12.8	143
23	Operando Revealing Dynamic Reconstruction of NiCo Carbonate Hydroxide for High-Rate Energy Storage. Joule, 2020, 4, 673-687.	24.0	88
24	Surface-to-Bulk Redox Coupling through Thermally Driven Li Redistribution in Li- and Mn-Rich Layered Cathode Materials. Journal of the American Chemical Society, 2019, 141, 12079-12086.	13.7	47
25	Surface Photovoltage-Induced Ultralow Work Function Material for Thermionic Energy Converters. ACS Energy Letters, 2019, 4, 2436-2443.	17.4	23
26	Quantification of Heterogeneous Degradation in Li-Ion Batteries. Advanced Energy Materials, 2019, 9, 1900674.	19.5	176
27	High-Voltage Charging-Induced Strain, Heterogeneity, and Micro-Cracks in Secondary Particles of a Nickel-Rich Layered Cathode Material. Advanced Functional Materials, 2019, 29, 1900247.	14.9	219
28	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
29	Intensity modulation of the Shirley background of the $\text{Cr } 3p$ spectra with photon energies around the $\text{Cr } 2p$ edge. Surface and Interface Analysis, 2018, 50, 246-252.	1.8	15
30	LBNL/SLAC Conference Looks at New Aspects of Photoemission with Hard X-rays. Synchrotron Radiation News, 2018, 31, 12-15.	0.8	1
31	Automatic projection image registration for nanoscale X-ray tomographic reconstruction. Journal of Synchrotron Radiation, 2018, 25, 1819-1826.	2.4	23
32	Thermally driven mesoscale chemomechanical interplay in $\text{Li}_{0.5}\text{Ni}_{0.6}\text{Mn}_{0.2}\text{Co}_{0.2}\text{O}_2$ cathode materials. Journal of Materials Chemistry A, 2018, 6, 23055-23061.	10.3	38
33	Chemomechanical interplay of layered cathode materials undergoing fast charging in lithium batteries. Nano Energy, 2018, 53, 753-762.	16.0	173
34	Propagation topography of redox phase transformations in heterogeneous layered oxide cathode materials. Nature Communications, 2018, 9, 2810.	12.8	59
35	Mesoscale Battery Science: The Behavior of Electrode Particles Caught on a Multispectral X-ray Camera. Accounts of Chemical Research, 2018, 51, 2484-2492.	15.6	58
36	Understanding the Effect of Local Short-Range Ordering on Lithium Diffusion in $\text{Li}_{1.3}\text{Nb}_{0.3}\text{Mn}_{0.4}\text{O}_2$ Single-Crystal Cathode. Chem, 2018, 4, 2108-2123.	11.7	80

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37	In situ Visualization of State-of-Charge Heterogeneity within a LiCoO ₂ Particle that Evolves upon Cycling at Different Rates. ACS Energy Letters, 2017, 2, 1240-1245.	17.4	159
38	Three-dimensional mapping of crystalline ceramic waste form materials. Journal of the American Ceramic Society, 2017, 100, 3722-3735.	3.8	6
39	Finding a Needle in the Haystack: Identification of Functionally Important Minority Phases in an Operating Battery. Nano Letters, 2017, 17, 7782-7788.	9.1	42
40	Analysis of Cathodic Reaction Process of SiCl ₄ during Si Electrodeposition in Ionic Liquids. Journal of the Electrochemical Society, 2017, 164, D994-D998.	2.9	11
41	Determination of copper nanoparticle size distributions with total reflection X-ray fluorescence spectroscopy. Journal of Synchrotron Radiation, 2017, 24, 283-287.	2.4	6
42	Interface Engineering for Atomic Layer Deposited Alumina Gate Dielectric on SiGe Substrates. ACS Applied Materials & Interfaces, 2016, 8, 19110-19118.	8.0	34
43	To get the most out of high resolution X-ray tomography: A review of the post-reconstruction analysis. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2016, 117, 29-41.	2.9	37
44	Characterization of electronic structure of periodically strained graphene. Applied Physics Letters, 2015, 107, .	3.3	6
45	Registration of the rotation axis in X-ray tomography. Journal of Synchrotron Radiation, 2015, 22, 452-457.	2.4	19
46	Nanoscale Morphological and Chemical Changes of High Voltage Lithium-Manganese Rich NMC Composite Cathodes with Cycling. Nano Letters, 2014, 14, 4334-4341.	9.1	163
47	Three-dimensional microstructural mapping of poisoning phases in the Neodymium Nickelate solid oxide fuel cell cathode. Solid State Ionics, 2013, 237, 16-21.	2.7	12
48	The plastic nature of the human bone-periodontal ligament-tooth fibrous joint. Bone, 2013, 57, 455-467.	2.9	44
49	Nanoscale Examination of Microdamage in Sheep Cortical Bone Using Synchrotron Radiation Transmission X-Ray Microscopy. PLoS ONE, 2013, 8, e57942.	2.5	18
50	Microgravity Induces Pelvic Bone Loss through Osteoclastic Activity, Osteocytic Osteolysis, and Osteoblastic Cell Cycle Inhibition by CDKN1a/p21. PLoS ONE, 2013, 8, e61372.	2.5	148
51	Formation of arsenolite crystals at room temperature after very high dose arsenic implantation in silicon. Applied Physics Letters, 2012, 101, .	3.3	5
52	Extended depth of focus for transmission x-ray microscope. Optics Letters, 2012, 37, 3708.	3.3	33
53	Photocathode device using diamondoid and cesium bromide films. Applied Physics Letters, 2012, 101, 241605.	3.3	13
54	Hard X-ray Nanotomography of Catalytic Solids at Work. Angewandte Chemie - International Edition, 2012, 51, 11986-11990.	13.8	96

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55	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
56	3D elemental sensitive imaging using transmission X-ray microscopy. <i>Analytical and Bioanalytical Chemistry</i> , 2012, 404, 1297-1301.	3.7	63
57	<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
58	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
59	Phase retrieval using polychromatic illumination for transmission X-ray microscopy. <i>Optics Express</i> , 2011, 19, 540.	3.4	40
60	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
61	Transmission X-ray microscopy for full-field nano imaging of biomaterials. <i>Microscopy Research and Technique</i> , 2011, 74, 671-681.	2.2	80
62	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
63	Device quality Sb-based compound semiconductor surface: A comparative study of chemical cleaning. <i>Journal of Applied Physics</i> , 2011, 109, .	2.5	45
64	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
65	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
66	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
67	Nanoscale X-Ray Microscopic Imaging of Mammalian Mineralized Tissue. <i>Microscopy and Microanalysis</i> , 2010, 16, 327-336.	0.4	79
68	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
69	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
70	3D nanoscale imaging of the yeast, <i>Schizosaccharomyces pombe</i> , by full-field transmission X-ray microscopy at 5.4 ÅeV. <i>Analytical and Bioanalytical Chemistry</i> , 2010, 397, 2117-2121.	3.7	24
71	Photon-enhanced thermionic emission for solar concentrator systems. <i>Nature Materials</i> , 2010, 9, 762-767.	27.5	442
72	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

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73	Reaction Mechanism, Bonding, and Thermal Stability of 1-Alkanethiols Self-Assembled on Halogenated Ge Surfaces. Langmuir, 2010, 26, 8419-8429.	3.5	22
74	Hafnium oxide/germanium oxynitride gate stacks on germanium: Capacitance scaling and interface state density. Applied Physics Letters, 2009, 94, .	3.3	50
75	Radical oxidation of germanium for interface gate dielectric GeO ₂ formation in metal-insulator-semiconductor gate stack. Journal of Applied Physics, 2009, 106, .	2.5	80
76	Electron sources utilizing thin CsBr coatings. Microelectronic Engineering, 2009, 86, 529-531.	2.4	15
77	Using X-ray Microscopy and Hg L ₃ XANES To Study Hg Binding in the Rhizosphere of <i>Spartina</i> Cordgrass. Environmental Science & Technology, 2009, 43, 7397-7402.	10.0	52
78	Correlation of local structure and electrical activation in arsenic ultrashallow junctions in silicon. Journal of Applied Physics, 2008, 104, .	2.5	18
79	Chemical Bonding, Interfaces, and Defects in Hafnium Oxide•Germanium Oxynitride Gate Stacks on Ge(100). Journal of the Electrochemical Society, 2008, 155, G304.	2.9	44
80	Photoemission study of Cs•NF ₃ activated GaAs(100) negative electron affinity photocathodes. Applied Physics Letters, 2008, 92, .	3.3	98
81	Analytical methods for discriminating stardust in aerogel capture media. Powder Diffraction, 2008, 23, 81-86.	0.2	1
82	Arsenic-dominated chemistry in the acid cleaning of InGaAs and InAlAs surfaces. Applied Physics Letters, 2008, 93, 194103.	3.3	39
83	High current density GaN•CsBr heterojunction photocathode with improved photoyield. Applied Physics Letters, 2007, 90, 231115.	3.3	15
84	Oxygen Transfer from Metal Gate to High-k Gate Dielectric Stack: Interface Structure & Property Changes. ECS Transactions, 2007, 11, 213-218.	0.5	1
85	Angular dependence of the photoelectron energy distribution of InP(100) and GaAs(100) negative electron affinity photocathodes. Applied Physics Letters, 2007, 91, .	3.3	9
86	Chemical states and electrical properties of a high-k metal oxide/silicon interface with oxygen-gettering titanium-metal-overlayer. Applied Physics Letters, 2006, 89, 142912.	3.3	40
87	Elemental Compositions of Comet 81P/Wild 2 Samples Collected by Stardust. Science, 2006, 314, 1731-1735.	12.6	200
88	CsBr photocathode at 257nm: A rugged high current density electron source. Applied Physics Letters, 2006, 89, 111114.	3.3	18
89	Roles of oxygen and water vapor in the oxidation of halogen terminated Ge(111) surfaces. Applied Physics Letters, 2006, 89, 231925.	3.3	30
90	Optimized cleaning method for producing device quality InP(100) surfaces. Journal of Applied Physics, 2005, 97, 124902.	2.5	51

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91	Photoemission studies of passivation of germanium nanowires. Applied Physics Letters, 2005, 87, 263109.	3.3	59
92	Mercury transformations in chemical agent simulant as characterized by X-ray absorption fine spectroscopy. Talanta, 2005, 67, 730-735.	5.5	3
93	Room temperature photo-oxidation of NH ₄ F-prepared H ⁺ Si(111)(1 \times 1) and H ⁺ Si(100). Journal of Applied Physics, 2004, 96, 6851-6858.	2.5	4
94	Electron scattering study within the depletion region of the GaN(0001) and the GaAs(100) surface. Applied Physics Letters, 2004, 85, 1541-1543.	3.3	55
95	Aerogel keystones: Extraction of complete hypervelocity impact events from aerogel collectors. Meteoritics and Planetary Science, 2004, 39, 1375-1386.	1.6	100
96	Photoelectron Spectroscopy to Probe the Mechanism of Electron Transfer through Oligo(phenylene) Tj ETQq0 0 0 rgBT /Overlock 10 Tf	2.6	15
97	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
98	Structural studies of ultrathin zirconia dielectrics. Philosophical Magazine Letters, 2002, 82, 519-528.	1.2	16
99	Formation of (Functionalized) Monolayers and Simultaneous Surface Patterning by Scribing Silicon in the Presence of Alkyl Halides. Chemistry of Materials, 2002, 14, 27-29.	6.7	54
100	Characterization of arsenic dose loss at the Si/SiO ₂ interface. Journal of Applied Physics, 2000, 87, 2255-2260.	2.5	44
101	Synchrotron radiation instrumentation conference. Synchrotron Radiation News, 2000, 13, 5-10.	0.8	0
102	Can studies of the II-VIs profit from the use of synchrotron radiation and the DOE financial support thereof?. Journal of Electronic Materials, 1999, 28, 804-809.	2.2	0
103	Alkyl-terminated Si(111) surfaces: A high-resolution, core level photoelectron spectroscopy study. Journal of Applied Physics, 1999, 85, 213-221.	2.5	167
104	Determination of the bonding of alkyl monolayers to the Si(111) surface using chemical-shift, scanned-energy photoelectron diffraction. Applied Physics Letters, 1997, 71, 1056-1058.	3.3	209
105	Microscopic chemical state identification of a silicon-carbide fiber by soft x-ray photoabsorption spectroscopy. Applied Physics Letters, 1997, 70, 2389-2391.	3.3	5
106	Evidence for [1s2p]3pshake-up channels in compounds and oxides of third-period elements. Physical Review B, 1996, 53, 15571-15576.	3.2	3
107	High-Sensitivity Total Reflection X-Ray Fluorescence Spectroscopy of Silicon Wafers Using Synchrotron Radiation.. Analytical Sciences, 1995, 11, 515-518.	1.6	5
108	Construction of a new imaging bandpass analyzer for a magnetic projection photoelectron microscope. Review of Scientific Instruments, 1995, 66, 3159-3167.	1.3	1

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109	Structural information on Y ions in C82 from EXAFS experiments. <i>Chemical Physics Letters</i> , 1993, 213, 196-201.	2.6	61
110	Imaging bandpass analyzer using double 90° spherical analyzers. <i>Review of Scientific Instruments</i> , 1993, 64, 1187-1193.	1.3	5
111	Molybdenum-silicon multilayer monochromator for the extreme ultraviolet. <i>Applied Physics Letters</i> , 1987, 50, 1841-1843.	3.3	21
112	A comparison of LEED intensity data from chemically polished and cleaved GaAs(110) surfaces. <i>Surface Science</i> , 1977, 69, 735-740.	1.9	30