

Pyuck-Pa Choi

List of Publications by Year in descending order

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100
papers

6,243
citations

76294

40
h-index

69214

77
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103
all docs

103
docs citations

103
times ranked

5345
citing authors

#	ARTICLE	IF	CITATIONS
1	Grain boundary segregation engineering in metallic alloys: A pathway to the design of interfaces. <i>Current Opinion in Solid State and Materials Science</i> , 2014, 18, 253-261.	5.6	466
2	Atomic-Scale Quantification of Grain Boundary Segregation in Nanocrystalline Material. <i>Physical Review Letters</i> , 2014, 112, 126103.	2.9	284
3	Strain hardening by dynamic slip band refinement in a high-Mn lightweight steel. <i>Acta Materialia</i> , 2016, 116, 188-199.	3.8	276
4	Atomic-scale mechanisms of deformation-induced cementite decomposition in pearlite. <i>Acta Materialia</i> , 2011, 59, 3965-3977.	3.8	269
5	Segregation engineering enables nanoscale martensite to austenite phase transformation at grain boundaries: A pathway to ductile martensite. <i>Acta Materialia</i> , 2013, 61, 6132-6152.	3.8	264
6	Chemical gradients across phase boundaries between martensite and austenite in steel studied by atom probe tomography and simulation. <i>Acta Materialia</i> , 2011, 59, 364-374.	3.8	255
7	Segregation Stabilizes Nanocrystalline Bulk Steel with Near Theoretical Strength. <i>Physical Review Letters</i> , 2014, 113, 106104.	2.9	224
8	Precipitation and austenite reversion behavior of a maraging steel produced by selective laser melting. <i>Journal of Materials Research</i> , 2014, 29, 2072-2079.	1.2	221
9	Microstructural evolution of a Ni-based superalloy (617B) at 700°C studied by electron microscopy and atom probe tomography. <i>Acta Materialia</i> , 2012, 60, 1731-1740.	3.8	212
10	Atomic-scale analysis of carbon partitioning between martensite and austenite by atom probe tomography and correlative transmission electron microscopy. <i>Acta Materialia</i> , 2014, 65, 215-228.	3.8	205
11	Evolution of strength and microstructure during annealing of heavily cold-drawn 6.3 GPa hypereutectoid pearlitic steel wire. <i>Acta Materialia</i> , 2012, 60, 4005-4016.	3.8	187
12	Metallic composites processed via extreme deformation: Toward the limits of strength in bulk materials. <i>MRS Bulletin</i> , 2010, 35, 982-991.	1.7	180
13	Elemental partitioning and mechanical properties of Ti- and Ta-containing Co-Al-W-base superalloys studied by atom probe tomography and nanoindentation. <i>Acta Materialia</i> , 2014, 78, 78-85.	3.8	168
14	Nanoscale austenite reversion through partitioning, segregation and kinetic freezing: Example of a ductile 2GPa Fe-C steel. <i>Acta Materialia</i> , 2012, 60, 2790-2804.	3.8	167
15	Atomic-scale compositional characterization of a nanocrystalline AlCrCuFeNiZn high-entropy alloy using atom probe tomography. <i>Acta Materialia</i> , 2013, 61, 4696-4706.	3.8	138
16	Element-Resolved Corrosion Analysis of Stainless-Type Glass-Forming Steels. <i>Science</i> , 2013, 341, 372-376.	6.0	136
17	Dynamic strain aging studied at the atomic scale. <i>Acta Materialia</i> , 2015, 86, 34-42.	3.8	136
18	Thermal stability of electrodeposited nanocrystalline Co-1.1at.%P. <i>Acta Materialia</i> , 2005, 53, 4473-4481.	3.8	135

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19	Advanced Scale Bridging Microstructure Analysis of Single Crystal Niâ€Base Superalloys. <i>Advanced Engineering Materials</i> , 2015, 17, 216-230.	1.6	117
20	Enhanced Congo red dye removal from aqueous solutions using iron nanoparticles: adsorption, kinetics, and equilibrium studies. <i>Dalton Transactions</i> , 2017, 46, 15470-15479.	1.6	103
21	Atomically Embedded Ag via Electrodifusion Boosts Oxygen Evolution of CoOOH Nanosheet Arrays. <i>ACS Catalysis</i> , 2020, 10, 562-569.	5.5	93
22	Investigation of the diffusion behavior of sodium in Cu(In,Ga)Se ₂ layers. <i>Journal of Applied Physics</i> , 2014, 115, .	1.1	90
23	Characterization of Grain Boundaries in Cu(In,Ga)Se ₂ Films Using Atom-Probe Tomography. <i>IEEE Journal of Photovoltaics</i> , 2011, 1, 207-212.	1.5	87
24	Confined and Chemically Flexible Grain Boundaries in Polycrystalline Compound Semiconductors. <i>Advanced Energy Materials</i> , 2012, 2, 992-998.	10.2	84
25	Interface-directed spinodal decomposition in TiAlN/CrN multilayer hard coatings studied by atom probe tomography. <i>Acta Materialia</i> , 2013, 61, 7534-7542.	3.8	77
26	Shear-Induced Mixing Governs Codeformation of Crystalline-Amorphous Nanolaminates. <i>Physical Review Letters</i> , 2014, 113, 035501.	2.9	70
27	Shear band-driven precipitate dispersion for ultrastrong ductile medium-entropy alloys. <i>Nature Communications</i> , 2021, 12, 4703.	5.8	70
28	On the Spheroidized Carbide Dissolution and Elemental Partitioning in High Carbon Bearing Steel 100Cr6. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2014, 45, 595-606.	1.1	60
29	Effects of phase composition and elemental partitioning on soft magnetic properties of AlFeCoCrMn high entropy alloys. <i>Acta Materialia</i> , 2019, 171, 31-39.	3.8	60
30	Comparative atom probe study of Cu(In,Ga)Se ₂ thin-film solar cells deposited on soda-lime glass and mild steel substrates. <i>Journal of Applied Physics</i> , 2011, 110, .	1.1	59
31	On the detection of multiple events in atom probe tomography. <i>Ultramicroscopy</i> , 2018, 189, 54-60.	0.8	59
32	(Nb ₄ , Zr ₄)AlC ₃ MAX Phase Solid Solutions: Processing, Mechanical Properties, and Density Functional Theory Calculations. <i>Inorganic Chemistry</i> , 2016, 55, 5445-5452.	1.9	54
33	A new method for mapping the three-dimensional atomic distribution within nanoparticles by atom probe tomography (APT). <i>Ultramicroscopy</i> , 2018, 190, 30-38.	0.8	51
34	Cuâ€Rich Precursors Improve Kesterite Solar Cells. <i>Advanced Energy Materials</i> , 2014, 4, 1300543.	10.2	49
35	Effects of Ru on elemental partitioning and precipitation of topologically close-packed phases in Ni-based superalloys. <i>Scripta Materialia</i> , 2015, 101, 44-47.	2.6	49
36	The Maximum Separation Cluster Analysis Algorithm for Atom-Probe Tomography: Parameter Determination and Accuracy. <i>Microscopy and Microanalysis</i> , 2014, 20, 1662-1671.	0.2	46

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37	Crucial microstructural feature to determine the impact toughness of intercritically annealed medium-Mn steel with triplex-phase microstructure. <i>Acta Materialia</i> , 2019, 164, 122-134.	3.8	46
38	Enhancement of the photocatalytic reactivity of TiO ₂ nano-particles by a simple mechanical blending with hydrophobic mordenite (MOR) zeolite. <i>Applied Catalysis B: Environmental</i> , 2009, 89, 406-410.	10.8	44
39	Elemental partitioning and site-occupancy in $\hat{\Gamma}^3/\hat{\Gamma}^3\hat{\alpha}^2$ forming Co-Ti-Mo and Co-Ti-Cr alloys. <i>Scripta Materialia</i> , 2018, 154, 159-162.	2.6	44
40	Atomic-scale Mapping of Impurities in Partially Reduced Hollow TiO ₂ Nanowires. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 5651-5655.	7.2	42
41	Passivation of Deep-Level Defects by Cesium Fluoride Post-Deposition Treatment for Improved Device Performance of Cu(In,Ga)Se ₂ Solar Cells. <i>ACS Applied Materials & Interfaces</i> , 2019, 11, 35653-35660.	4.0	41
42	On Local Phase Equilibria and the Appearance of Nanoparticles in the Microstructure of Single-Crystal Ni $\hat{\alpha}$ -Base Superalloys. <i>Advanced Engineering Materials</i> , 2016, 18, 1556-1567.	1.6	39
43	Dissecting functional degradation in NiTi shape memory alloys containing amorphous regions via atomistic simulations. <i>Acta Materialia</i> , 2021, 202, 331-349.	3.8	39
44	Reducing Time to Discovery: Materials and Molecular Modeling, Imaging, Informatics, and Integration. <i>ACS Nano</i> , 2021, 15, 3971-3995.	7.3	36
45	Mechanisms of extrinsic alkali incorporation in CIGS solar cells on flexible polyimide elucidated by nanoscale and quantitative analyses. <i>Nano Energy</i> , 2020, 67, 104201.	8.2	35
46	Orientation-dependent plastic deformation mechanisms and competition with stress-induced phase transformation in microscale NiTi. <i>Acta Materialia</i> , 2021, 208, 116731.	3.8	31
47	On the nature of twin boundary-associated strengthening in Fe-Mn-C steel. <i>Scripta Materialia</i> , 2018, 156, 27-31.	2.6	30
48	Thermal stability of TiAlN/CrN multilayer coatings studied by atom probe tomography. <i>Ultramicroscopy</i> , 2011, 111, 518-523.	0.8	29
49	Self-assembled nano-composite perovskites as highly efficient and robust hybrid cathodes for solid oxide fuel cells. <i>Journal of Materials Chemistry A</i> , 2022, 10, 2496-2508.	5.2	29
50	Improved strength of a medium-Mn steel by V addition without sacrificing ductility. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2021, 802, 140681.	2.6	27
51	On the microstructural evolution and partitioning behavior of L12-structured $\hat{\Gamma}^3\hat{\alpha}^2$ -based Co-Ti-W alloys upon Cr and Al alloying. <i>Intermetallics</i> , 2019, 104, 97-102.	1.8	26
52	Interaction of tungsten nanopowders with air under different conditions. <i>Scripta Materialia</i> , 2005, 52, 375-380.	2.6	24
53	Thermal dissolution mechanisms of AlN/CrN hard coating superlattices studied by atom probe tomography and transmission electron microscopy. <i>Acta Materialia</i> , 2015, 85, 32-41.	3.8	24
54	Unraveling the Metastability of C _n (n = 2-4) Clusters. <i>Journal of Physical Chemistry Letters</i> , 2019, 10, 581-588.	2.1	24

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55	Modulation of plastic flow in metallic glasses via nanoscale networks of chemical heterogeneities. <i>Acta Materialia</i> , 2017, 140, 116-129.	3.8	21
56	Application of Focused Ion Beam to Atom Probe Tomography Specimen Preparation from Mechanically Alloyed Powders. <i>Microscopy and Microanalysis</i> , 2007, 13, 347-353.	0.2	19
57	Deformation induced alloying in crystalline α -metallic glass nano-composites. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2015, 628, 269-280.	2.6	19
58	Evaluation of Analysis Conditions for Laser-Pulsed Atom Probe Tomography: Example of Cemented Tungsten Carbide. <i>Microscopy and Microanalysis</i> , 2017, 23, 431-442.	0.2	19
59	A simple and robust route toward flexible CIGS photovoltaic devices on polymer substrates: Atomic level microstructural analysis and local opto-electronic investigation. <i>Solar Energy Materials and Solar Cells</i> , 2019, 195, 280-290.	3.0	19
60	Tailoring nanostructured NbCoSn-based thermoelectric materials via crystallization of an amorphous precursor. <i>Nano Energy</i> , 2021, 80, 105518.	8.2	19
61	Atom Probe Tomography Studies on the Cu(In,Ga)Se ₂ Grain Boundaries. <i>Journal of Visualized Experiments</i> , 2013, , .	0.2	18
62	Atomic diffusion induced degradation in bimetallic layer coated cemented tungsten carbide. <i>Corrosion Science</i> , 2017, 120, 1-13.	3.0	18
63	Compositional gradients and impurity distributions in CuInSe ₂ thin-film solar cells studied by atom probe tomography. <i>Surface and Interface Analysis</i> , 2012, 44, 1386-1388.	0.8	17
64	Fabrication of Atom Probe Tomography Specimens from Nanoparticles Using a Fusible Bi-In-Sn Alloy as an Embedding Medium. <i>Microscopy and Microanalysis</i> , 2019, 25, 438-446.	0.2	17
65	Effects of Mo on the mechanical behavior of β -strengthened Co-Ti-based alloys. <i>Acta Materialia</i> , 2020, 197, 69-80.	3.8	16
66	Three-dimensional atomic mapping of ligands on palladium nanoparticles by atom probe tomography. <i>Nature Communications</i> , 2021, 12, 4301.	5.8	16
67	Spallation resistance of oxide scales on Alloy 617 enhanced by boron addition. <i>Corrosion Science</i> , 2018, 140, 196-204.	3.0	14
68	FeNiCoAlTaB superelastic and shape-memory wires with oligocrystalline grain structure. <i>Scripta Materialia</i> , 2020, 188, 1-5.	2.6	13
69	On the oxygen-induced hot cracking in a direct laser deposited Ni-based superalloy. <i>Scripta Materialia</i> , 2021, 196, 113751.	2.6	13
70	Stabilization of monodispersed spherical silica particles and their alignment with reduced crack density. <i>Colloids and Surfaces A: Physicochemical and Engineering Aspects</i> , 2014, 441, 354-359.	2.3	12
71	On the Multiple Event Detection in Atom Probe Tomography. <i>Microscopy and Microanalysis</i> , 2017, 23, 618-619.	0.2	12
72	Characterization of Pd and Pd@Au core-shell nanoparticles using atom probe tomography and field evaporation simulation. <i>Journal of Alloys and Compounds</i> , 2020, 831, 154721.	2.8	12

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73	Hot cracking behavior of additively manufactured D2 steel. <i>Materials Characterization</i> , 2021, 178, 111217.	1.9	11
74	Transmission electron microscopy and atom probe specimen preparation from mechanically alloyed powder using the focused ion-beam lift-out technique. <i>Journal of Electron Microscopy</i> , 2007, 56, 43-49.	0.9	10
75	Additive manufacturing of titanium-base alloys with equiaxed microstructures using powder blends. <i>Additive Manufacturing</i> , 2020, 36, 101467.	1.7	10
76	Homogeneity of mechanically alloyed nano-crystalline Fe-Cu-powders. <i>International Journal of Materials Research</i> , 2008, 99, 541-547.	0.1	8
77	Oxidation behavior of AlN/CrN multilayered hard coatings. <i>Nano Convergence</i> , 2017, 4, 15.	6.3	8
78	Compositional evolution of long-period stacking ordered structures in magnesium studied by atom probe tomography. <i>Scripta Materialia</i> , 2018, 156, 55-59.	2.6	8
79	Investigation of sputter-deposited Al ₂ at.%Cu layers by means of the tomographic atom probe (TAP). <i>Scripta Materialia</i> , 2005, 53, 323-327.	2.6	7
80	Publisher's Note: Shear-Induced Mixing Governs Codeformation of Crystalline-Amorphous Nanolaminates [<i>Phys. Rev. Lett.</i> 113 (2014)]. <i>Physical Review Letters</i> , 2014, 113, .	2.9	7
81	Microstructural evolution of the heat affected zone of a Co-Ti-W alloy upon laser cladding with a CoNiCrAlY coating. <i>Materials Characterization</i> , 2019, 158, 109998.	1.9	7
82	Enhanced microstructural stability of β -strengthened Co-Ti-Mo-based alloys through Al additions. <i>Acta Materialia</i> , 2021, 214, 117011.	3.8	7
83	An assessment of the homogeneity of nano-crystalline Fe-Cu powders as studied by means of APT. <i>Ultramicroscopy</i> , 2009, 109, 599-605.	0.8	6
84	Detection of Cu ₂ Zn ₅ SnSe ₈ and Cu ₂ Zn ₆ SnSe ₉ phases in co-evaporated Cu ₂ ZnSnSe ₄ thin-films. <i>Applied Physics Letters</i> , 2015, 107, .	1.5	6
85	Amorphous phase separation in an Fe-based bulk metallic glass. <i>Materials Letters</i> , 2017, 190, 161-164.	1.3	6
86	Nano-scale Characterization of Thin-Film Solar Cells. <i>Microscopy and Microanalysis</i> , 2014, 20, 394-395.	0.2	5
87	Effects of transformation-induced plasticity on the small-scale deformation behavior of single crystalline complex concentrated alloys. <i>Scripta Materialia</i> , 2020, 176, 122-125.	2.6	5
88	Variable chemical decoration of extended defects in Cu-poor $Cu_{2-x}Zn_xSnS_4$ thin films. <i>Physical Review Materials</i> , 2019, 3, .	0.9	5
89	Atom Probe Tomography Investigations of Ag Nanoparticles Embedded in Pulse-Electrodeposited Ni Films. <i>Microscopy and Microanalysis</i> , 2021, 27, 1007-1016.	0.2	4
90	Formation of nanometer-sized Cu-Sn-Se particles in Cu ₂ ZnSnSe ₄ thin-films and their effect on solar cell efficiency. <i>Acta Materialia</i> , 2017, 132, 276-284.	3.8	3

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91	Decomposition behavior of yttria-stabilized zirconia and its effect on directed energy deposited Ti-based composite material. Journal of Materials Science and Technology, 2022, 112, 138-150.	5.6	3
92	Kinetic stabilization of a topotactically transformed texture morphology <i>via</i> doping in Ni-rich lithium layered oxides. Journal of Materials Chemistry A, 2022, 10, 13735-13743.	5.2	3
93	Co-deformation of crystalline-amorphous nanolaminates. Microscopy and Microanalysis, 2015, 21, 361-362.	0.2	2
94	Degradation Mechanism of Molds for Precision Glass Molding. Microscopy and Microanalysis, 2017, 23, 698-699.	0.2	1
95	Spatial Distributions of Alloying Elements Obtained from Atom Probe Tomography of the Amorphous Ribbon Fe ₇₅ C ₁₁ Si ₂ B ₈ Cr ₄ . Korean Journal of Materials Research, 2013, 23, 190-193.	0.1	1
96	Elemental Sub-Lattice Occupation and Microstructural Evolution in β -Ti-12Ti-4Mo-Cr Alloys. Microscopy and Microanalysis, 2021, , 1-5.	0.2	0
97	Atom Probe Tomography: Unveiling the Elemental Distribution in Nanostructured Materials With Near-Atomic Resolution. , 2022, , 641-647.		0
98	Atom Probe Tomography: A Characterization Method for Three-dimensional Elemental Mapping at the Atomic Scale. Journal of Korean Powder Metallurgy Institute, 2012, 19, 67-71.	0.2	0
99	Novel approaches for analyzing nanoparticles using Atom Probe Tomography. Journal of Surface Analysis (Online), 2019, 26, 140-141.	0.1	0
100	Joining dissimilar metal of Ti and CoCrMo using directed energy deposition. Journal of Materials Science and Technology, 2021, 111, 99-99.	5.6	0