Young-Chang Joo

List of Publications by Year
in descending order

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129	3,392	159358 30	161609 54
papers	citations	h-index	g-index

129	129	129	5054
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Highly efficient and bending durable perovskite solar cells: toward a wearable power source. Energy and Environmental Science, 2015, 8, 916-921.	15.6	602
2	A Strainâ€Insensitive Stretchable Electronic Conductor: PEDOT:PSS/Acrylamide Organogels. Advanced Materials, 2016, 28, 1636-1643.	11.1	241
3	Electrochemical upgrade of CO2 from amine capture solution. Nature Energy, 2021, 6, 46-53.	19.8	129
4	A new hematite photoanode doping strategy for solar water splitting: oxygen vacancy generation. Physical Chemistry Chemical Physics, 2013, 15, 2117.	1.3	126
5	Quasi-graphitic carbon shell-induced Cu confinement promotes electrocatalytic CO2 reduction toward C2+ products. Nature Communications, 2021, 12, 3765.	5.8	99
6	Tailoring of Electron-Collecting Oxide Nanoparticulate Layer for Flexible Perovskite Solar Cells. Journal of Physical Chemistry Letters, 2016, 7, 1845-1851.	2.1	93
7	Long-term reliable physical health monitoring by sweat poreâ€“inspired perforated electronic skins. Science Advances, 2021, 7, .	4.7	89
8	Crack nucleation during mechanical fatigue in thin metal films on flexible substrates. Acta Materialia, 2013, 61, 3473-3481.	3.8	76
9	An iron oxide photoanode with hierarchical nanostructure for efficient water oxidation. Journal of Materials Chemistry A, 2014, 2, 2297-2305.	5.2	72
10	Temperature Effect on Intermetallic Compound Growth Kinetics of Cu Pillar/Sn Bumps. Journal of Electronic Materials, 2009, 38, 2228-2233.	1.0	70
11	Microstructure Evolution and Defect Formation in Cu Through-Silicon Vias (TSVs) During Thermal Annealing. Journal of Electronic Materials, 2012, 41, 712-719.	1.0	67
12	Electromigration-induced transgranular failure mechanisms in single-crystal aluminum interconnects. Journal of Applied Physics, 1997, 81, 6062-6072.	1.1	62
13	Stretchingâ€Induced Growth of PEDOTâ€Rich Cores: A New Mechanism for Strainâ€Dependent Resistivity Change in PEDOT:PSS Films. Advanced Functional Materials, 2013, 23, 4020-4027.	7.8	54
14	A Stretchable Ionic Diode from Copolyelectrolyte Hydrogels with Methacrylated Polysaccharides. Advanced Functional Materials, 2019, 29, 1806909.	7.8	52
15	Intermetallic Compound Growth and Reliability of Cu Pillar Bumps Under Current Stressing. Journal of Electronic Materials, 2010, 39, 2281-2285.	1.0	49
16	Tunable Sn structures in porosity-controlled carbon nanofibers for all-solid-state lithium-ion battery anodes. Journal of Materials Chemistry A, 2015, 3, 11021-11030.	5.2	49
17	Fatigueâ€Free, Electrically Reliable Copper Electrode with Nanohole Array. Small, 2012, 8, 3300-3306.	5.2	48
18	Ion-to-ion amplification through an open-junction ionic diode. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 13807-13815.	3.3	46

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19	Synthetic Mechanism Discovery of Monophase Cuprous Oxide for Record High Photoelectrochemical Conversion of CO₂ to Methanol in Water. ACS Nano, 2018, 12, 8187-8196.	7.3	44
20	Bending Strain and Bending Fatigue Lifetime of Flexible Metal Electrodes on Polymer Substrates. Materials, 2019, 12, 2490.	1.3	44
21	Effect of film thickness on the stretchability and fatigue resistance of Cu films on polymer substrates. Journal of Materials Research, 2014, 29, 2827-2834.	1.2	43
22	Thermodynamically driven self-formation of copper-embedded nitrogen-doped carbon nanofiber catalysts for a cascade electroreduction of carbon dioxide to ethylene. Journal of Materials Chemistry A, 2020, 8, 11632-11641.	5.2	42
23	Nanofiber Channel Organic Electrochemical Transistors for Lowâ€Power Neuromorphic Computing and Wideâ€Bandwidth Sensing Platforms. Advanced Science, 2021, 8, 2001544.	5.6	42
24	Computational wrapping: A universal method to wrap 3D-curved surfaces with nonstretchable materials for conformal devices. Science Advances, 2020, 6, eaax6212.	4.7	39
25	Effect of Ionization Characteristics on Electrochemical Migration Lifetimes of Sn-3.0Ag-0.5Cu Solder in NaCl and Na2SO4 Solutions. Journal of Electronic Materials, 2008, 37, 1111-1118.	1.0	38
26	Improved mechanical performance of solution-processed MWCNT/Ag nanoparticle composite films with oxygen-pressure-controlled annealing. Carbon, 2012, 50, 98-106.	5.4	37
27	Reliability Issues and Solutions in Flexible Electronics Under Mechanical Fatigue. Electronic Materials Letters, 2018, 14, 387-404.	1.0	37
28	Structural-relaxation-driven electron doping of amorphous oxide semiconductors by increasing the concentration of oxygen vacancies in shallow-donor states. NPG Asia Materials, 2016, 8, e250-e250.	3.8	35
29	Effect of Bias Voltage on the Electrochemical Migration Behaviors of Sn and Pb. IEEE Transactions on Device and Materials Reliability, 2009, 9, 483-488.	1.5	34
30	Growth Mechanism of Strain-Dependent Morphological Change in PEDOT:PSS Films. Scientific Reports, 2016, 6, 25332.	1.6	33
31	High performance Znâ€"Snâ€"O thin film transistors with Cu source/drain electrode. Physica Status Solidi - Rapid Research Letters, 2013, 7, 196-198.	1.2	30
32	Effects of bending fatigue on the electrical resistance in metallic films on flexible substrates. Metals and Materials International, 2010, 16, 947-951.	1.8	27
33	Densely charged polyelectrolyte-stuffed nanochannel arrays for power generation from salinity gradient. Scientific Reports, 2016, 6, 26416.	1.6	26
34	Selective crack suppression during deformation in metal films on polymer substrates using electron beam irradiation. Nature Communications, 2019, 10, 4454.	5.8	26
35	One-step structure modulation of electrospun metal-loaded carbon nanofibers: Redox reaction controlled calcination. Carbon, 2015, 82, 273-281.	5.4	24
36	Predictive fabrication of Ni phosphide embedded in carbon nanofibers as active and stable electrocatalysts. Journal of Materials Chemistry A, 2019, 7, 7451-7458.	5.2	24

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37	Designing thermal and electrochemical oxidation processes for Î´-MnO₂ nanofibers for high-performance electrochemical capacitors. Journal of Materials Chemistry A, 2014, 2, 7197-7204.	5.2	23
38	Metal-organic Framework-driven Porous Cobalt Disulfide Nanoparticles Fabricated by Gaseous Sulfurization as Bifunctional Electrocatalysts for Overall Water Splitting. Scientific Reports, 2019, 9, 19539.	1.6	23
39	Electrochemical carbon dioxide reduction on copperâ€“zinc alloys: ethanol and ethylene selectivity analysis. Journal of Materials Chemistry A, 2022, 10, 9393-9401.	5.2	23
40	Coupled self-assembled monolayer for enhancement of Cu diffusion barrier and adhesion properties. RSC Advances, 2014, 4, 60123-60130.	1.7	22
41	Electrochemical Migration Characteristics of Eutectic Sn-Pb Solder Alloy in NaCl and Na2SO4 Solutions. Journal of Electronic Materials, 2009, 38, 691-699.	1.0	21
42	Interfacial Reaction Effect on Electrical Reliability of Cu Pillar/Sn Bumps. Journal of Electronic Materials, 2010, 39, 2368-2374.	1.0	20
43	A Bendable Liâ€Ion Battery with a Nanoâ€Hairy Electrode: Direct Integration Scheme on the Polymer Substrate. Advanced Energy Materials, 2015, 5, 1400611.	10.2	19
44	Electrical and Mechanical Properties of Through-Silicon Vias and Bonding Layers in Stacked Wafers for 3D Integrated Circuits. Journal of Electronic Materials, 2012, 41, 232-240.	1.0	18
45	Evolution of Electromigration-Induced Voids in Single Crystalline Aluminum Lines with Different Crystallographic Orientations. Materials Research Society Symposia Proceedings, 1993, 309, 351.	0.1	17
46	Investigation of crystallization behaviors of nitrogen-doped Ge2Sb2Te5 films by thermomechanical characteristics. Applied Physics Letters, 2009, 94, 061904.	1.5	16
47	Composition, Microstructure, and Electrical Performance of Sputtered SnO Thin Films for p-Type Oxide Semiconductor. ACS Applied Materials & Interfaces, 2018, 10, 3810-3821.	4.0	16
48	Effects of Wafer Cleaning and Annealing on Glass/Silicon Wafer Direct Bonding. Journal of Electronic Packaging, Transactions of the ASME, 2004, 126, 120-123.	1.2	15
49	Effect of isothermal aging on intermetallic compounds and Kirkendall void growth kinetics of Au stud bumps. Metals and Materials International, 2009, 15, 819-823.	1.8	15
50	Influences of semiconductor morphology on the mechanical fatigue behavior of flexible organic electronics. Applied Physics Letters, 2013, 103, .	1.5	15
51	Extremely Versatile Deformability beyond Materiality: A New Material Platform through Simple Cutting for Rugged Batteries. Advanced Engineering Materials, 2019, 21, 1900206.	1.6	15
52	Line length dependence of threshold current density and driving force in eutectic SnPb and SnAgCu solder electromigration. Journal of Applied Physics, 2008, 103, 073701.	1.1	14
53	Controlled Molybdenum Disulfide Assembly inside Carbon Nanofiber by Boudouard Reaction Inspired Selective Carbon Oxidation. Advanced Materials, 2017, 29, 1605327.	11.1	14
54	Photoelectrochemical CO₂ Reduction via Cu₂O/CuFeO₂ Hierarchical nanorods photocatalyst. ChemCatChem, 2020, 12, 5185-5191.	1.8	14

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55	Effect of Capping Layer on Hillock Formation in Thin Al Films. Metals and Materials International, 2008, 14, 147-150.	1.8	13
56	Gaseous Nanocarvingâ€Mediated Carbon Framework with Spontaneous Metal Assembly for Structureâ€Tunable Metal/Carbon Nanofibers. Advanced Materials, 2017, 29, 1702958.	11.1	13
57	Thermomechanical In Situ Monitoring of Bi2Te3 Thin Film and Its Relationship with Microstructure and Thermoelectric Performances. Electronic Materials Letters, 2018, 14, 426-431.	1.0	13
58	PEDOT:PSS/Polyacrylamide Nanoweb: Highly Reliable Soft Conductors with Swelling Resistance. ACS Applied Materials & Interfaces, 2019, 11, 10099-10107.	4.0	13
59	Hydrogel-Based Iontronics on a Polydimethylsiloxane Microchip. ACS Applied Materials & Interfaces, 2021, 13, 6606-6614.	4.0	13
60	Relationship between grain structures and texture of damascene Cu lines. Journal of Electronic Materials, 2004, 33, 48-52.	1.0	12
61	In-Situ Observation of Electromigration in Eutectic SnPb Solder Lines: Atomic Migration and Hillock Formation. Journal of Electronic Materials, 2007, 36, 562-567.	1.0	12
62	Microstructure evolution in Cu pillar/eutectic SnPb solder system during isothermal annealing. Metals and Materials International, 2009, 15, 815-818.	1.8	12
63	The effect of energetically coated ZrO_x on enhanced electrochemical performances of Li(Ni_{1/3}Co_{1/3}Mn_{1/3})O₂ cathodes using modified radio frequency (RF) sputtering. Journal of Materials Chemistry A, 2015, 3, 12982-12991.	5.2	12
64	Electromigration Characteristics and Morphological Evolution of Cu Interconnects on CVD Co and Ru Liners for 10-nm Class VLSI Technology. IEEE Electron Device Letters, 2018, 39, 1050-1053.	2.2	12
65	Bonding structure and etching characteristics of amorphous carbon for a hardmask deposited by DC sputtering. Carbon, 2019, 154, 277-284.	5.4	12
66	Anion Extraction-Induced Polymorph Control of Transition Metal Dichalcogenides. Nano Letters, 2019, 19, 8644-8652.	4.5	12
67	Effect of the composition of Sn-Pb alloys on the microstructure of filaments and the electrochemical migration characteristics. Metals and Materials International, 2011, 17, 617-621.	1.8	11
68	Improvement of Electrochemical Migration Resistance by Cu/Sn Intermetallic Compound Barrier on Cu in Printed Circuit Board. IEEE Transactions on Device and Materials Reliability, 2014, 14, 382-389.	1.5	11
69	Improved Battery Performance of Nanocrystalline Si Anodes Utilized by Radio Frequency (RF) Sputtered Multifunctional Amorphous Si Coating Layers. ACS Applied Materials & Interfaces, 2018, 10, 2242-2248.	4.0	11
70	Three-dimensional simulation of microstructure evolution in damascene interconnects: Effect of overburden thickness. Journal of Electronic Materials, 2005, 34, 559-563.	1.0	10
71	Measurement of Poissonâ€™s Ratio of a Thin Film on a Substrate by Combining X-Ray Diffraction with in situ Substrate Bending. Electronic Materials Letters, 2009, 5, 51-54.	1.0	10
72	Electrochemical oxidation of boron-doped nickelâ€“iron layered double hydroxide for facile charge transfer in oxygen evolution electrocatalysts. RSC Advances, 2021, 11, 8198-8206.	1.7	10

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73	New pathway for the formation of metallic cubic phase Ge-Sb-Te compounds induced by an electric current. Scientific Reports, 2016, 6, 21466.	1.6	9
74	Effect of twisting fatigue on the electrical reliability of a metal interconnect on a flexible substrate. Journal of Materials Research, 2018, 33, 138-148.	1.2	9
75	Dimensionality reduction and unsupervised clustering for EELS-SI. Ultramicroscopy, 2021, 231, 113314.	0.8	9
76	Effect of grain boundary energy on surface-energy induced abnormal grain growth in columnar-grained film. Metals and Materials International, 2002, 8, 1-5.	1.8	8
77	Fabrication of a hydrogen sensor using palladium-coated silver dendrites formed electrochemically. Metals and Materials International, 2010, 16, 789-792.	1.8	8
78	Improvements of mechanical fatigue reliability of Cu interconnects on flexible substrates through MoTi alloy under-layer. Electronic Materials Letters, 2015, 11, 149-154.	1.0	8
79	Cu Diffusionâ€Driven Dynamic Modulation of the Electrical Properties of Amorphous Oxide Semiconductors. Advanced Functional Materials, 2017, 27, 1700336.	7.8	8
80	Current-induced morphological evolution and reliability of Ag interconnects fabricated by a printing method based on nanoparticles. RSC Advances, 2017, 7, 9719-9723.	1.7	8
81	Thermally Stable Amorphous Oxide-based Schottky Diodes through Oxygen Vacancy Control at Metal/Oxide Interfaces. Scientific Reports, 2019, 9, 7872.	1.6	8
82	Rapid and Reliable Formation of Highly Densified Bilayer Oxide Dielectrics on Silicon Substrates via DUV Photoactivation for Low-Voltage Solution-Processed Oxide Thin-Film Transistors. ACS Applied Materials & Interfaces, 2021, 13, 2820-2828.	4.0	8
83	Intermetallic compound and Kirkendall void growth in Cu pillar bump during annealing and current stressing. , 2008, , .		7
84	Effects of film thickness and deposition rate on the diffusion barrier performance of titanium nitride in Cu-through silicon vias. Electronic Materials Letters, 2014, 10, 275-279.	1.0	7
85	Effect of Thermoelectric Leg Thickness in a Planar Thin Film TEC Device on Different Substrates. Electronic Materials Letters, 2019, 15, 686-692.	1.0	7
86	Operation Range-Optimized Silver Nanowire Through Junction Treatment. Electronic Materials Letters, 2020, 16, 491-497.	1.0	7
87	Direct observation and catalytic role of mediator atom in 2D materials. Science Advances, 2020, 6, eaba4942.	4.7	7
88	Planar-Radial Structured Thermoelectric Cooler for Local Hot Spot Cooling in Mobile Electronics. , 2020, , .		6
89	In Twisting Motion, Stressâ€Free Zone of Wearable Electronics. Advanced Electronic Materials, 2020, 6, 1901239.	2.6	6
90	Effect of microstructure on electrical and mechanical properties: Impurities of inkjet-printed Ag and Cu interconnects. , 2008, , .		5

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91	Effect of initial anodic dissolution current on the electrochemical migration phenomenon of Sn solder. , 2009, , .		5
92	Effect of effective modulus on hillock formations in Al lines on glass. Metals and Materials International, 2009, 15, 661-664.	1.8	5
93	Effects of dopings on the electric-field-induced atomic migration and void formation in Ge<inf>2</inf>Sb<inf>2</inf>Te<inf>5</inf>. , 2011, , .		5
94	Electromigration behavior of advanced metallization on the structural effects for memory devices. Microelectronic Engineering, 2016, 156, 97-102.	1.1	5
95	Effect of the Thermal Annealing on the Stretchability and Fatigue Failure of the Copper Film on the Polymer Substrate. Journal of Electronic Materials, 2019, 48, 4582-4588.	1.0	5
96	The dielectric material dependence of stress and stress relaxation on the mechanism of stress-voiding of CU interconnects. , 0, , .		4
97	Study of Cu Migration-Induced Failure of Inter-Layer Dielectric. , 2006, , .		4
98	The characteristics of Cu-drift induced dielectric breakdown under alternating polarity bias temperature stress. , 2009, , .		4
99	Electrical failure and damage analysis of multi-layer metal films on flexible substrate during cyclic bending deformation. , 2011, , .		4
100	Leakage Current Characteristic of Pre-Damaged Interlayer Dielectric During Voltage Ramp Method. , 2007, , .		3
101	Dendritic palladium-silver nano-structure grown by electrochemical migration method for hydrogen sensing device. , 2008, , .		3
102	Stable Interconnect System for Horizontal Thermoelectric Coolers by Thermodynamic-Based Prediction. Electronic Materials Letters, 2019, 15, 654-662.	1.0	3
103	Electrical Reliability and Bending Test Methodologies of Metal Electrode on Flexible Substrate. Journal of Nanoscience and Nanotechnology, 2020, 20, 470-477.	0.9	3
104	Measuring Thin Film Fracture Toughness Using the Indentation Sinking-in Effect and Focused Ion Beam. Materials Research Society Symposia Proceedings, 1999, 594, 389.	0.1	2
105	Porosity content dependence of TDDB lifetime and flat band voltage shift by cu diffusion in porous spin-on low-k. , 0, , .		2
106	Effect of Microstructure and Dielectric Materials on Stress-Induced Damages in Damascene Cu/Low-k Interconnects. Materials Research Society Symposia Proceedings, 2005, 863, B7.6-1.	0.1	2
107	Dominant Migration Element in Electrochemical Migration of Eutectic SnPb Solder Alloy. , 0, , .		2
108	Quantitative analysis of the size distributions and elements of the precipitates in Fe-3%Si alloy during secondary recrystallization annealing using HAADF imaging and XEDS. Metals and Materials International, 2009, 15, 113-118.	1.8	2

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109	Electrophoretic kinetics of concentrated TiO2 nanoparticle suspensions in aprotic solvent. Electronic Materials Letters, 2018, 14, 79-82.	1.0	2
110	Thermodynamically driven self-formation of Ag nanoparticles in Zn-embedded carbon nanofibers for efficient electrochemical CO2 reduction. RSC Advances, 2021, 11, 24702-24708.	1.7	2
111	Density Functional Theory Study of Edge-Induced Atomic-Scale Structural Phase Transitions of MoS2 Nanocrystals: Implications for a High-Performance Catalyst. ACS Applied Nano Materials, 2021, 4, 5496-5502.	2.4	2
112	Fabrication of Ni Nanoparticle-Embedded Porous Carbon Nanofibers Through Selective Etching of Selectively Oxidized MgO. Electronic Materials Letters, 2022, 18, 198.	1.0	2
113	Electrical Reliability of Flexible Silicon Package Integrated on Polymer Substrate During Repeated Bending Deformations. Journal of Electronic Packaging, Transactions of the ASME, 2022, 144, .	1.2	2
114	Electromigration-Induced Stress Interaction between Via and Polygranular Cluster. Materials Research Society Symposia Proceedings, 2000, 612, 8111.	0.1	1
115	Stress Relaxation during Isothermal Annealing at Elevated Temperatures in Electroplated Cu Films. Materials Research Society Symposia Proceedings, 2003, 795, 328.	0.1	1
116	Electromigration-limited reliability of advanced metallization for memory devices. , 2015, , .		1
117	Electromigration behavior of eutectic SnPb solder. , 0, , .		0
118	The Simulation of Copper Drift in SiO2 during Bias Temperature Stress (BTS) Test. Materials Research Society Symposia Proceedings, 2002, 731, 8171.	0.1	0
119	Effect of Dielectric Materials on Stress-Induced Damage Modes in Damascene Cu Lines. Materials Research Society Symposia Proceedings, 2003, 795, 403.	0.1	0
120	Effect of electromigration temperature on dominant migration and hillock phases of eutectic SnPb alloys. , 2006, , .		0
121	In-situ Study on the Effects of Temperature and Size on the Electromigration Characteristics of Eutectic SnPb and Pb-free Solder Alloys. , 2006, , .		0
122	In-situ Study on Effects of Annealing Temperature and Mo Interlayer on Stress Relaxation Behaviors of Pure Al Films on Glass Substrates. Materials Research Society Symposia Proceedings, 2006, 924, 1.	0.1	0
123	Effects of annealing and electromigration on intermetallic compound formation of Cu pillar bump. , 2007, , .		0
124	Reliability of Cu pillar bump for flip chip and 3-D SiP. , 2008, , .		0
125	Electromigration behavior of micro Sn bump under pulsed DC. , 2009, , .		0
126	Current stressing effects on the reliability of Cu pillar bump with shallow solder. , 2010, , .		0

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127	Successive breakdown mode of time-dependent dielectric breakdown for Cu interconnects and lifetime enhancement under dynamic bias stress. , 2018, , .		0
128	Phase Engineering of Transition Metal Dichalcogenides via a Thermodynamically Designed Gasâ€"Solid Reaction. Journal of Physical Chemistry Letters, 2021, 12, 8430-8439.	2.1	0
129	Grain Boundary Characteristics and Stress-induced Damage Morphologies in Sputtered and Electroplated Copper Films. Materials Research Society Symposia Proceedings, 2003, 766, 231.	0.1	0