

Cheng-Yi Liu

List of Publications by Year in descending order

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113
papers

1,783
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331670

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113
all docs

113
docs citations

113
times ranked

1027
citing authors

#	ARTICLE	IF	CITATIONS
1	Microstructure-electromigration correlation in a thin stripe of eutectic SnPb solder stressed between Cu electrodes. <i>Applied Physics Letters</i> , 1999, 75, 58-60.	3.3	159
2	Electromigration in Sn-Pb solder strips as a function of alloy composition. <i>Journal of Applied Physics</i> , 2000, 88, 5703-5709.	2.5	146
3	Effect of current crowding on vacancy diffusion and void formation in electromigration. <i>Applied Physics Letters</i> , 2000, 76, 988-990.	3.3	141
4	Study of interaction between Cu-Sn and Ni-Sn interfacial reactions by Ni-Sn3.5Ag-Cu sandwich structure. <i>Journal of Electronic Materials</i> , 2003, 32, 1303-1309.	2.2	120
5	Electromigration in eutectic SnPb solder lines. <i>Journal of Applied Physics</i> , 2001, 89, 4332-4335.	2.5	85
6	Study of electromigration-induced Cu consumption in the flip-chip Sn-Cu solder bumps. <i>Journal of Applied Physics</i> , 2006, 100, 083702.	2.5	76
7	Morphology of wetting reactions of SnPb alloys on Cu as a function of alloy composition. <i>Journal of Materials Research</i> , 1998, 13, 37-44.	2.6	54
8	Electromigration Studies of Cu/Carbon Nanotube Composite Interconnects Using Blech Structure. <i>IEEE Electron Device Letters</i> , 2008, 29, 1001-1003.	3.9	52
9	Kinetic analysis of the interfacial reactions in Ni/Sn/Cu sandwich structures. <i>Journal of Electronic Materials</i> , 2006, 35, 1955-1960.	2.2	47
10	Epitaxial Cu-Sn bulk crystals grown by electric current. <i>Acta Materialia</i> , 2013, 61, 5713-5719.	7.9	45
11	Stress relaxation in GaN by transfer bonding on Si substrates. <i>Applied Physics Letters</i> , 2007, 91, 251114.	3.3	38
12	Diamond Heat Spreader Layer for High-Power Thin-GaN Light-Emitting Diodes. <i>IEEE Photonics Technology Letters</i> , 2008, 20, 845-847.	2.5	36
13	Experimental Observation and Computer Simulation of Al/Sn Substitution in p-Type Aluminum Nitride-Doped Tin Oxide Thin Film. <i>Journal of Physical Chemistry C</i> , 2016, 120, 4211-4218.	3.1	34
14	Electromigration-induced failures at Cu/Sn/Cu flip-chip joint interfaces. <i>Microelectronics Reliability</i> , 2010, 50, 1159-1162.	1.7	33
15	Effect of Cu content on interfacial reactions between Sn(Cu) alloys and Ni/Ti thin-film metallization. <i>Journal of Electronic Materials</i> , 2003, 32, 1214-1221.	2.2	28
16	Prevention of electromigration-induced Cu pad dissolution by using a high electromigration-resistance ternary Cu-Ni-Sn layer. <i>Scripta Materialia</i> , 2006, 54, 661-664.	5.2	26
17	Correlation between interfacial reactions and mechanical strengths of Sn(Cu)/Ni(P) solder bumps. <i>Journal of Electronic Materials</i> , 2004, 33, 1130-1136.	2.2	25
18	Current density dependence of electromigration-induced flip-chip Cu pad consumption. <i>Applied Physics Letters</i> , 2006, 89, 101906.	3.3	25

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19	Coupling effect in Pt/Sn/Cu sandwich solder joint structures. <i>Acta Materialia</i> , 2007, 55, 3327-3335.	7.9	24
20	Prevention of spalling by the self-formed reaction barrier layer on controlled collapse chip connections under bump metallization. <i>Journal of Electronic Materials</i> , 2003, 32, L1-L3.	2.2	23
21	Measurement of thermal resistance of first-level Cu substrate used in high-power multi-chips LED package. <i>Microelectronics Reliability</i> , 2012, 52, 855-860.	1.7	23
22	Mechanism of conductivity degradation of AZO thin film in high humidity ambient. <i>Applied Surface Science</i> , 2013, 282, 32-37.	6.1	22
23	Study of wetting reaction between eutectic AuSn and Au foil. <i>Journal of Electronic Materials</i> , 2006, 35, 28-34.	2.2	21
24	Retardation of electromigration-induced Ni(P) consumption by an electroless Pd insertion layer. <i>Applied Physics Letters</i> , 2010, 96, .	3.3	20
25	Ni Interdiffusion Coefficient and Activation Energy in Cu ₆ Sn ₅ . <i>Journal of Electronic Materials</i> , 2012, 41, 172-175.	2.2	20
26	The Efficiency and Reliability Improvement by Utilizing Quartz Airtight Packaging of UVC LEDs. <i>IEEE Transactions on Electron Devices</i> , 2016, 63, 3143-3146.	3.0	19
27	Light Output Enhancement of Near UV-LED by Using Ti-Doped ITO Transparent Conducting Layer. <i>IEEE Photonics Technology Letters</i> , 2010, 22, 1443-1445.	2.5	18
28	Kinetics of Ni solid-state dissolution in Sn and Sn _{3.5} Ag alloys. <i>Journal of Alloys and Compounds</i> , 2019, 797, 684-691.	5.5	18
29	Effect of Cu additives on Sn whisker formation of Sn(Cu) finishes. <i>Journal of Electronic Materials</i> , 2006, 35, 1885-1891.	2.2	17
30	Cross-Interaction Between Au/Sn and Cu/Sn Interfacial Reactions. <i>Journal of Electronic Materials</i> , 2009, 38, 2257-2263.	2.2	15
31	Study of Interfacial Reactions Between Sn(Cu) Solders and Ni-Co Alloy Layers. <i>Journal of Electronic Materials</i> , 2010, 39, 2403-2411.	2.2	15
32	Study of p-type AlN-doped SnO ₂ thin films and its transparent devices. <i>Applied Surface Science</i> , 2015, 328, 262-268.	6.1	15
33	Pattern-Coverage Effect on Light Extraction Efficiency of GaN LED on Patterned-Sapphire Substrate. <i>Electrochemical and Solid-State Letters</i> , 2012, 15, H72.	2.2	14
34	Electromigration Studies of Sn(Cu) and Sn(Ni) Alloy Stripes. <i>Journal of Materials Research</i> , 2005, 20, 2072-2079.	2.6	13
35	Copper/carbon nanotube composite interconnect for enhanced electromigration resistance. , 2008, , .		13
36	Fabrication of nano-cavity patterned sapphire substrate using self-assembly meshed Pt thin film on c-plane sapphire substrate. <i>Thin Solid Films</i> , 2017, 628, 127-131.	1.8	13

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37	Electromigration studies on Sn(Cu) alloy lines. Journal of Electronic Materials, 2003, 32, 1515-1522.	2.2	11
38	Fabrication of High-Power InGaN-Based Light-Emitting Diode Chips on Pyramidally Patterned Sapphire Substrate. Japanese Journal of Applied Physics, 2010, 49, 020201.	1.5	10
39	Formation of carriers in Ti-oxide thin films by substitution reactions. Journal of Applied Physics, 2012, 111, .	2.5	9
40	Characterization study of GaN-based epitaxial layer and light-emitting diode on nature-patterned sapphire substrate. Journal of Materials Research, 2012, 27, 971-977.	2.6	9
41	Light extraction improvement by forming volcanic crater on Nâ€polar GaN emitting surface. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 998-1001.	1.8	9
42	Light Extraction Enhancement of Vertical LED by Growing ZnO Nano-Rods on Tips of Pyramids. IEEE Photonics Technology Letters, 2013, 25, 1774-1777.	2.5	9
43	High-dielectric-constant silicon nitride thin films fabricated by radio frequency sputtering in Ar and Ar/N ₂ gas mixture. Thin Solid Films, 2020, 709, 138198.	1.8	9
44	Size dependent dewetting and sideband reaction of eutectic SnPb on Au/Cu/Cr multilayered thin film. Journal of Materials Research, 1998, 13, 1103-1106.	2.6	8
45	Fabricating low-loss hollow optical waveguides via amorphous silicon bonding using dilute KOH solvent. IEEE Photonics Technology Letters, 2005, 17, 2592-2594.	2.5	8
46	Surface oxidation of molten Sn(Ag, Ni, In, Cu) alloys. Jom, 2009, 61, 52-58.	1.9	8
47	Electromigration-Induced Failure of Ni/Cu Bilayer Bond Pads Joined with Sn(Cu) Solders. Journal of Electronic Materials, 2009, 38, 2573-2578.	2.2	8
48	Kinetic Analysis of Spontaneous Whisker Growth on Pre-treated Surfaces with Weak Oxide. Journal of Electronic Materials, 2014, 43, 3290-3295.	2.2	8
49	Photocurrent generation in SnO ₂ thin film by surface charged chemisorption O ions. Applied Surface Science, 2018, 442, 398-402.	6.1	8
50	Fully Solutionâ€Processed Lowâ€Voltage Driven Transparent Oxide Thin Film Transistors. Physica Status Solidi (A) Applications and Materials Science, 2018, 215, 1800192.	1.8	8
51	Effect of annealing atmosphere (CO and N ₂ gas flow) on surface morphology and crystal quality of AlN buffer layer. Ceramics International, 2020, 46, 11080-11088.	4.8	8
52	Growth Mechanism of a Ternary (Cu,Ni) ₆ Sn ₅ Compound at the Sn(Cu)/Ni(P) Interface. Journal of Electronic Materials, 2010, 39, 2382-2386.	2.2	7
53	Electromigration Study on Sn(Cu) Solder/Ni(P) Joint Interfaces. Journal of Electronic Materials, 2012, 41, 3342-3347.	2.2	7
54	Warping and stress relaxation of the transferred GaN LED epi-layer on electroplated Cu substrates. Electronic Materials Letters, 2013, 9, 441-444.	2.2	7

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55	Internal Quantum Efficiency Enhancement by Relieving Compressive Stress of GaN-Based LED. IEEE Photonics Technology Letters, 2014, 26, 1793-1796.	2.5	7
56	Effect of Cu solubility on electromigration in Sn(Cu) micro joint. Journal of Applied Physics, 2017, 122, 095702.	2.5	7
57	Cross-Interaction Study of Cu/Sn/Pd and Ni/Sn/Pd Sandwich Solder Joint Structures. Journal of Electronic Materials, 2012, 41, 130-137.	2.2	6
58	Etching Three-Dimensional Pattern on Sapphire Substrate by Dynamic Self-Masking Alunogen Compound. ECS Solid State Letters, 2015, 4, R35-R38.	1.4	6
59	Organic/inorganic F8T2/GaN light emitting heterojunction. Organic Electronics, 2017, 49, 64-68.	2.6	6
60	Controlling the Electron Concentration for Surface-Enhanced Raman Spectroscopy. ACS Photonics, 2021, 8, 2410-2416.	6.6	6
61	Metallic wafer and chip bonding for led packaging. , 0, , .		5
62	An effective Cu-Sn barrier layer for Au bump used in optoelectronic devices. Journal of Materials Research, 2004, 19, 2536-2540.	2.6	5
63	Study of wetting reaction between eutectic AuSn and Au foil. Journal of Electronic Materials, 2006, 35, 353-359.	2.2	5
64	Interfacial Reactions Between Columnar or Layered Ni(P) Layers and Sn-Ag-Cu Solder. Journal of Electronic Materials, 2014, 43, 277-283.	2.2	5
65	Effect of mixing glass frits on electrical property and microstructure of sintered Cu conductive thick film. Journal of the American Ceramic Society, 2021, 104, 1707-1715.	3.8	5
66	Fabricating a Hollow Optical Waveguide for Optical Communication Applications. Journal of Microelectromechanical Systems, 2006, 15, 584-587.	2.5	4
67	Preparation of V-doped AZO thin films and ZnO nanorods on V-doped AZO thin films by hydrothermal process. Journal of Sol-Gel Science and Technology, 2015, 73, 647-654.	2.4	4
68	Formation Mechanism of Self-Formed Triangular Pyramidal Patterns on Sapphire Substrate. Crystal Growth and Design, 2020, 20, 4811-4817.	3.0	4
69	Conductive and Transparent Properties of ZnO/Cu/ZnO Sandwich Structure. Journal of Electronic Materials, 2021, 50, 779-785.	2.2	4
70	The Effect of Thermomigration on Phase Coarsening in a Eutectic SnPb Alloy. Journal of Electronic Materials, 2007, 36, 1495-1500.	2.2	3
71	Conductor Formation Through Phase Transformation in Ti-Oxide Thin Films. Journal of Electronic Materials, 2012, 41, 166-171.	2.2	3
72	Anelasticity of GaN Epitaxial Layer in GaN LED. Materials Research Express, 2016, 3, 105026.	1.6	3

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73	Effects of nighttime lights by LED and fluorescent lighting on human melatonin. Journal of Ambient Intelligence and Humanized Computing, 2016, 7, 837-844.	4.9	3
74	Effect of Ag solutes on the solid-state Cu dissolution in the Sn _{3.5} Ag. Journal of Materials Science: Materials in Electronics, 2021, 32, 567-576.	2.2	3
75	Effect of De-Twinning on Tensile Strength of Nano-Twinned Cu Films. Nanomaterials, 2021, 11, 1630.	4.1	3
76	Flip-Chip Assembled GaAs pHEMT Ka-Band Oscillator. IEEE Microwave and Wireless Components Letters, 2007, 17, 67-69.	3.2	2
77	Fabrication of Mg-Based Intermetallic Compounds by Liquid Electromigration. Journal of Electronic Materials, 2007, 36, 1489-1494.	2.2	2
78	Ag Electromigration Against Electron Flow in Sn ₅ Ag/Cu Solder Bump. Electrochemical and Solid-State Letters, 2009, 12, H445.	2.2	2
79	Reflectivity and Abnormal Absorption at ITO/Al Interface. Journal of Electronic Materials, 2009, 38, 108-112.	2.2	2
80	Effective Charge Number of Cu in Cu-Sn Compound. ECS Solid State Letters, 2012, 1, P73-P75.	1.4	2
81	Optical and electrical characterization of transparent conductive Gd-doped AZO thin films. Physica Status Solidi (A) Applications and Materials Science, 2013, 210, 600-606.	1.8	2
82	An Electroless-Ag Reflector Developed for High-Brightness White LEDs. Journal of Electronic Materials, 2014, 43, 4602-4609.	2.2	2
83	Nanomeshed Pt(Au) Transparent Contact to p-GaN of Light-Emitting Diode. Journal of Electronic Materials, 2014, 43, 166-169.	2.2	2
84	Sulfurization Study on the Ag and Ag-Pd Reflectors for GaN-Based LEDs. Journal of Electronic Materials, 2016, 45, 191-196.	2.2	2
85	Growth Direction Control of ZnO Nanorods on the Edge of Patterned Indium-Tin Oxide/Aluminum-Doped Zinc Oxide Bilayers. Crystal Growth and Design, 2017, 17, 3100-3106.	3.0	2
86	Mechanism of Ag sulfurization resistance improvement by alloying solutes in Ag-based alloy films. Journal of Applied Physics, 2018, 123, 245305.	2.5	2
87	Fabrication of p-type TiO ₂ and transparent p-TiO ₂ /n-ITO p-n junctions. AIP Advances, 2019, 9, .	1.3	2
88	Fabrication of Aluminum Nitride Thermal Substrate and Low-Temperature Die-Bonding Process for High Power LED. Journal of Electronic Materials, 2019, 48, 194-200.	2.2	2
89	Effect of Chemical Additives in the Plating Bath on Surface Corrosion Resistance of Ni(P). Journal of Electronic Materials, 2020, 49, 26-33.	2.2	2
90	Effect of eutectic reaction between depositing atoms and substrate elements on morphological evolution of Sn-Bi-Sn multilayer deposition. Materials Chemistry and Physics, 2020, 250, 122960.	4.0	2

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91	Flip-Chip Packaged Perovskite Solar Cells. Energy Technology, 2021, 9, 2001129.	3.8	2
92	Low-Noise, Single-Polarized, and High-Speed Vertical-Cavity Surface-Emitting Lasers for Very Short Reach Data Communication. Journal of Lightwave Technology, 2022, 40, 3845-3854.	4.6	2
93	Cu Sintering Process Modified by Adding a Low Temperature Liquid Sintering Step. Jom, 2022, 74, 1730-1738.	1.9	2
94	Wet-etching mechanism of a semi-sphere pattern on sapphire substrate. Materials Chemistry and Physics, 2022, 281, 125863.	4.0	2
95	Electromigration-induced failures at Cu/Sn/Cu flip-chip joint interfaces. , 2009, , .		1
96	LED Die-Bonded on the Ag/Cu Substrate by a Sn-BiZn-Sn Bonding System. Journal of Electronic Materials, 2016, 45, 6171-6176.	2.2	1
97	Measurement of internal electrical field across InGaN quantum wells in GaN LEDs. Materials Chemistry and Physics, 2021, 265, 124514.	4.0	1
98	Mechanism and quantum efficiency of yellow emission at the organic-inorganic F8T2/p-GaN interface. Surfaces and Interfaces, 2022, 29, 101799.	3.0	1
99	Spalling suppression by Sn-3.5Ag incorporated with Cu particles. , 0, , .		0
100	Electromigration studies on Sn(Cu) alloy lines. , 0, , .		0
101	Nanothick Layer Transfer of Hydrogen-implanted Wafer Using Polysilicon Sacrificial Layer. Materials Research Society Symposia Proceedings, 2006, 921, 1.	0.1	0
102	Study of Interfacial Reactions by Ni/Sn5Ag/Cu Sandwich Structure. , 2006, , .		0
103	Cross-interaction effect in the Ni/Sn/Cu solder joints. , 2009, , .		0
104	Dewetting Retardation on Ag/Cu Coated Light Emitting Diode Lead Frames During the Solder Immersion Process. Journal of Electronic Materials, 2009, 38, 2270-2274.	2.2	0
105	Electromigration failures at Cu/Sn joint interface. , 2013, , .		0
106	Study of Sn and SnAgCu Solders Wetting Reaction on Ni/Pd/Au Substrates. Journal of Electronic Materials, 2016, 45, 6079-6085.	2.2	0
107	Effect of interfacial dissolution on electromigration failures at metals interface. Journal of Materials Science: Materials in Electronics, 2017, 28, 15149-15153.	2.2	0
108	Experiment and Theoretical Calculation of the Surface Space Charge Region Effect on Photocurrent Generation of SnO ₂ Bilayer Photodiode Devices. Advanced Electronic Materials, 2019, 5, 1800679.	5.1	0

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109	Study of galvanized Sn-finished Ag surface. Journal of Materials Science: Materials in Electronics, 2021, 32, 18605-18615.	2.2	0
110	Plastic deformation of ZnO thin films through edge and screw dislocation movements. Journal of the American Ceramic Society, 2021, 104, 6579.	3.8	0
111	High-mobility ZnVxOy/ZnO conduction path in ZnO/V/ZnO multilayer structure. Journal of Applied Physics, 2021, 130, 075302.	2.5	0
112	Pd/Cu(220) interdiffusion under compressive stress. Materials Chemistry and Physics, 2021, 271, 124882.	4.0	0
113	Effect of Ag Additives on the Consumption of a Cathode Cu Pad in a Cu/Sn3.5Ag/Cu Flip-Chip Structure Under Electromigration. Journal of Electronic Materials, 2021, 50, 6584-6589.	2.2	0