

# Chih Chen

## List of Publications by Citations

**Source:** <https://exaly.com/author-pdf/591175/chih-chen-publications-by-citations.pdf>

**Version:** 2024-04-27

This document has been generated based on the publications and citations recorded by exaly.com. For the latest version of this publication list, visit the link given above.

The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

181  
papers

3,363  
citations

32  
h-index

51  
g-index

253  
ext. papers

4,447  
ext. citations

3.8  
avg, IF

5.63  
L-index

#	Paper	IF	Citations
181	Unidirectional growth of microbumps on (111)-oriented and nanotwinned copper. <i>Science</i> , <b>2012</b> , 336, 1007-10	33.3	204
180	Electromigration and Thermomigration in Pb-Free Flip-Chip Solder Joints. <i>Annual Review of Materials Research</i> , <b>2010</b> , 40, 531-555	12.8	179
179	Microstructure-electromigration correlation in a thin stripe of eutectic SnPb solder stressed between Cu electrodes. <i>Applied Physics Letters</i> , <b>1999</b> , 75, 58-60	3.4	132
178	Electromigration in SnPb solder strips as a function of alloy composition. <i>Journal of Applied Physics</i> , <b>2000</b> , 88, 5703-5709	2.5	123
177	Effect of current crowding on vacancy diffusion and void formation in electromigration. <i>Applied Physics Letters</i> , <b>2000</b> , 76, 988-990	3.4	109
176	Transition from flip chip solder joint to 3D IC microbump: Its effect on microstructure anisotropy. <i>Microelectronics Reliability</i> , <b>2013</b> , 53, 2-6	1.2	97
175	Thermomigration in solder joints. <i>Materials Science and Engineering Reports</i> , <b>2012</b> , 73, 85-100	30.9	82
174	Electromigration failure mechanisms for SnAg3.5 solder bumps on Ti/Cu and Ni(P)/Au metallization pads. <i>Journal of Applied Physics</i> , <b>2004</b> , 96, 4518-4524	2.5	77
173	Electromigration in eutectic SnPb solder lines. <i>Journal of Applied Physics</i> , <b>2001</b> , 89, 4332-4335	2.5	74
172	Low-temperature direct copper-to-copper bonding enabled by creep on (111) surfaces of nanotwinned Cu. <i>Scientific Reports</i> , <b>2015</b> , 5, 9734	4.9	71
171	Infrared microscopy of hot spots induced by Joule heating in flip-chip SnAg solder joints under accelerated electromigration. <i>Applied Physics Letters</i> , <b>2006</b> , 88, 022110	3.4	63
170	Low-temperature direct copper-to-copper bonding enabled by creep on highly (111)-oriented Cu surfaces. <i>Scripta Materialia</i> , <b>2014</b> , 78-79, 65-68	5.6	59
169	Eliminate Kirkendall voids in solder reactions on nanotwinned copper. <i>Scripta Materialia</i> , <b>2013</b> , 68, 241-246	5.4	58
168	Low-temperature growth of ZnO nanorods in anodic aluminum oxide on Si substrate by atomic layer deposition. <i>Applied Physics Letters</i> , <b>2007</b> , 90, 033104	3.4	56
167	Stress analysis of spontaneous Sn whisker growth. <i>Journal of Materials Science: Materials in Electronics</i> , <b>2006</b> , 18, 269-281	2.1	55
166	Direct probe of heterojunction effects upon photoconductive properties of TiO <sub>2</sub> nanotubes fabricated by atomic layer deposition. <i>Nanotechnology</i> , <b>2010</b> , 21, 225602	3.4	50
165	Fabrication and Characterization of (111)-Oriented and Nanotwinned Cu by Dc Electrodeposition. <i>Crystal Growth and Design</i> , <b>2012</b> , 12, 5012-5016	3.5	49

164	Thermomigration in Pb-free SnAg solder joint under alternating current stressing. <i>Applied Physics Letters</i> , <b>2009</b> , 94, 092107	3.4	49
163	Effect of Sn grain orientation on formation of Cu <sub>6</sub> Sn <sub>5</sub> intermetallic compounds during electromigration. <i>Scripta Materialia</i> , <b>2017</b> , 128, 6-9	5.6	46
162	Asymmetrical growth of Cu <sub>6</sub> Sn <sub>5</sub> intermetallic compounds due to rapid thermomigration of Cu in molten SnAg solder joints. <i>Intermetallics</i> , <b>2012</b> , 29, 155-158	3.5	45
161	Study of void formation due to electromigration in flip-chip solder joints using Kelvin bump probes. <i>Applied Physics Letters</i> , <b>2006</b> , 89, 032103	3.4	45
160	Failure induced by thermomigration of interstitial Cu in Pb-free flip chip solder joints. <i>Applied Physics Letters</i> , <b>2008</b> , 93, 122103	3.4	42
159	Vertical interconnects of microbumps in 3D integration. <i>MRS Bulletin</i> , <b>2015</b> , 40, 257-263	3.2	41
158	Thermomigration in flip-chip SnPb solder joints under alternating current stressing. <i>Applied Physics Letters</i> , <b>2007</b> , 90, 152105	3.4	40
157	Electromigration issues in lead-free solder joints. <i>Journal of Materials Science: Materials in Electronics</i> , <b>2006</b> , 18, 259-268	2.1	40
156	Effect of three-dimensional current and temperature distributions on void formation and propagation in flip-chip solder joints during electromigration. <i>Applied Physics Letters</i> , <b>2006</b> , 89, 022117	3.4	38
155	Threshold current density of electromigration in eutectic SnPb solder. <i>Applied Physics Letters</i> , <b>2005</b> , 86, 203504	3.4	37
154	Formation of nearly void-free Cu <sub>3</sub> Sn intermetallic joints using nanotwinned Cu metallization. <i>Applied Physics Letters</i> , <b>2014</b> , 104, 171902	3.4	35
153	Effect of Al-trace dimension on Joule heating and current crowding in flip-chip solder joints under accelerated electromigration. <i>Applied Physics Letters</i> , <b>2006</b> , 88, 172108	3.4	35
152	The effect of a concentration gradient on interfacial reactions in microbumps of Ni/SnAg/Cu during liquid-state soldering. <i>Scripta Materialia</i> , <b>2012</b> , 66, 741-744	5.6	34
151	Electromigration in SnCu intermetallic compounds. <i>Journal of Applied Physics</i> , <b>2009</b> , 105, 023715	2.5	34
150	Electromigration in Pb-free SnAg <sub>3.8</sub> Cu <sub>0.7</sub> solder stripes. <i>Journal of Applied Physics</i> , <b>2005</b> , 98, 033523	2.5	34
149	Three-dimensional simulation on current-density distribution in flip-chip solder joints under electric current stressing. <i>Journal of Applied Physics</i> , <b>2005</b> , 98, 044509	2.5	32
148	Study of electromigration-induced formation of discrete voids in flip-chip solder joints by in-situ 3D laminography observation and finite-element modeling. <i>Acta Materialia</i> , <b>2016</b> , 117, 100-110	8.4	31
147	Grain growth in electroplated (111)-oriented nanotwinned Cu. <i>Scripta Materialia</i> , <b>2014</b> , 89, 5-8	5.6	30

146	Thermomigration of Cu <sub>6</sub> Sn and Ni <sub>6</sub> Sn intermetallic compounds during electromigration in Pb-free SnAg solder joints. <i>Journal of Materials Research</i> , <b>2011</b> , 26, 983-991	2.5	30
145	Thermal gradient in solder joints under electrical-current stressing. <i>Journal of Electronic Materials</i> , <b>2004</b> , 33, 1350-1354	1.9	30
144	Copper-to-copper direct bonding on highly (111)-oriented nanotwinned copper in no-vacuum ambient. <i>Scientific Reports</i> , <b>2018</b> , 8, 13910	4.9	29
143	Microstructure control of unidirectional growth of $\epsilon$ -Cu <sub>6</sub> Sn <sub>5</sub> in microbumps on <111> oriented and nanotwinned Cu. <i>Acta Materialia</i> , <b>2013</b> , 61, 4910-4919	8.4	27
142	Comparison of oxidation in uni-directionally and randomly oriented Cu films for low temperature Cu-to-Cu direct bonding. <i>Scientific Reports</i> , <b>2018</b> , 8, 10671	4.9	25
141	The heterojunction effects of TiO <sub>2</sub> nanotubes fabricated by atomic layer deposition on photocarrier transportation direction. <i>Nanoscale Research Letters</i> , <b>2012</b> , 7, 231	5	25
140	Effect of void propagation on bump resistance due to electromigration in flip-chip solder joints using Kelvin structure. <i>Applied Physics Letters</i> , <b>2007</b> , 91, 132113	3.4	25
139	Electromigration study in SnAg <sub>3.8</sub> Cu <sub>0.7</sub> solder joints on Ti/Cr-Cu/Cu under-bump metallization. <i>Journal of Electronic Materials</i> , <b>2003</b> , 32, 1222-1227	1.9	25
138	Dopant activation of heavily doped silicon-on-insulator by high density currents. <i>Journal of Applied Physics</i> , <b>1999</b> , 86, 1552-1557	2.5	24
137	Extremely anisotropic single-crystal growth in nanotwinned copper. <i>NPG Asia Materials</i> , <b>2014</b> , 6, e135-e135	13.3	21
136	Investigation of void nucleation and propagation during electromigration of flip-chip solder joints using x-ray microscopy. <i>Applied Physics Letters</i> , <b>2006</b> , 89, 262106	3.4	20
135	Cross interactions on interfacial compound formation of solder bumps and metallization layers during reflow. <i>Journal of Materials Research</i> , <b>2004</b> , 19, 3654-3664	2.5	20
134	Effect of Sn grain orientation on growth of Cu-Sn intermetallic compounds during thermomigration in Cu-Sn <sub>2.3</sub> Ag-Ni microbumps. <i>Materials Letters</i> , <b>2019</b> , 236, 190-193	3.3	20
133	Precipitation of large Ag <sub>3</sub> Sn intermetallic compounds in SnAg <sub>2.5</sub> microbumps after multiple reflows in 3D-IC packaging. <i>Materials Chemistry and Physics</i> , <b>2012</b> , 134, 340-344	4.4	18
132	Direct measurement of hot-spot temperature in flip-chip solder joints under current stressing using infrared microscopy. <i>Journal of Applied Physics</i> , <b>2008</b> , 104, 033708	2.5	18
131	Relieving the current crowding effect in flip-chip solder joints during current stressing. <i>Journal of Materials Research</i> , <b>2006</b> , 21, 137-146	2.5	18
130	Critical length of electromigration for eutectic SnPb solder stripe. <i>Applied Physics Letters</i> , <b>2006</b> , 88, 182105	10.5	18
129	Tensile Properties and Thermal Stability of Unidirectionally -Oriented Nanotwinned and -Oriented Microtwinned Copper. <i>Materials</i> , <b>2020</b> , 13,	3.5	17

128	A new failure mechanism of electromigration by surface diffusion of Sn on Ni and Cu metallization in microbumps. <i>Scientific Reports</i> , <b>2018</b> , 8, 5935	4.9	17
127	Electromigration Mechanism of Failure in Flip-Chip Solder Joints Based on Discrete Void Formation. <i>Scientific Reports</i> , <b>2017</b> , 7, 17950	4.9	17
126	Effect of bump size on current density and temperature distributions in flip-chip solder joints. <i>Microelectronics Reliability</i> , <b>2009</b> , 49, 544-550	1.2	17
125	Growth Mechanism of TiO <sub>2</sub> Nanotube Arrays in Nanopores of Anodic Aluminum Oxide on Si Substrates by Atomic Layer Deposition. <i>Journal of the Electrochemical Society</i> , <b>2011</b> , 158, K58	3.9	17
124	Influence of Cu column under-bump-metallizations on current crowding and Joule heating effects of electromigration in flip-chip solder joints. <i>Journal of Applied Physics</i> , <b>2012</b> , 111, 043705	2.5	17
123	Effect of under-bump-metallization structure on electromigration of Sn-Ag solder joints. <i>Advances in Materials Research (South Korea)</i> , <b>2012</b> , 1, 83-92		17
122	Formation Mechanism of Porous Cu <sub>3</sub> Sn Intermetallic Compounds by High Current Stressing at High Temperatures in Low-Bump-Height Solder Joints. <i>Crystals</i> , <b>2016</b> , 6, 12	2.3	17
121	Growth competition between layer-type and porous-type Cu <sub>3</sub> Sn in microbumps. <i>Microelectronics Reliability</i> , <b>2017</b> , 79, 32-37	1.2	16
120	Effect of geometric nanostructures on the absorption edges of 1-D and 2-D TiO <sub>2</sub> fabricated by atomic layer deposition. <i>ACS Applied Materials &amp; Interfaces</i> , <b>2013</b> , 5, 3549-55	9.5	16
119	Enhanced green laser activation by antireflective gate structures in panel transistors. <i>Applied Physics Letters</i> , <b>2008</b> , 92, 063503	3.4	15
118	Three-Dimensional Thermoelectrical Simulation in Flip-Chip Solder Joints with Thick Underbump Metallizations during Accelerated Electromigration Testing. <i>Journal of Electronic Materials</i> , <b>2007</b> , 36, 159-167	1.9	15
117	Relieving Hot-Spot Temperature and Current Crowding Effects During Electromigration in Solder Bumps by Using Cu Columns. <i>Journal of Electronic Materials</i> , <b>2007</b> , 36, 1348-1354	1.9	15
116	Effect of Al-trace degradation on Joule heating during electromigration in flip-chip solder joints. <i>Applied Physics Letters</i> , <b>2007</b> , 90, 082103	3.4	15
115	Metallurgical reactions of Sn-3.5Ag solder with various thicknesses of electroplated Ni/Cu under bump metallization. <i>Journal of Materials Research</i> , <b>2005</b> , 20, 2772-2779	2.5	15
114	Extremely rapid grain growth in scallop-type Cu <sub>6</sub> Sn <sub>5</sub> during solid-liquid interdiffusion reactions in micro-bump solder joints. <i>Scripta Materialia</i> , <b>2020</b> , 179, 45-48	5.6	14
113	Flux-driven cellular precipitation in open system to form porous Cu <sub>3</sub> Sn. <i>Philosophical Magazine</i> , <b>2016</b> , 96, 1318-1331	1.6	14
112	Effect of grain orientations of Cu seed layers on the growth of $\alpha$ -oriented nanotwinned Cu. <i>Scientific Reports</i> , <b>2014</b> , 4, 6123	4.9	14
111	Study of electromigration in thin tin film using edge displacement method. <i>Journal of Applied Physics</i> , <b>2005</b> , 98, 013540	2.5	14

110	Correlation between the Microstructures of Bonding Interfaces and the Shear Strength of Cu-to-Cu Joints Using (111)-Oriented and Nanotwinned Cu. <i>Materials</i> , <b>2018</b> , 11,	3.5	14
109	3-D simulation on current density distribution in flip-chip solder joints with thick Cu UBM under current stressing <b>2005</b> ,		13
108	Fast phase transformation due to electromigration of 18 $\mu$ m microbumps in three-dimensional integrated-circuit integration. <i>Materials Letters</i> , <b>2014</b> , 137, 136-138	3.3	12
107	Electromigration-induced Pb and Sn whisker growth in SnPb solder stripes. <i>Journal of Materials Research</i> , <b>2008</b> , 23, 2017-2022	2.5	12
106	Effect of Polyethylene Glycol Additives on Pulse Electroplating of SnAg Solder. <i>Journal of Electronic Materials</i> , <b>2008</b> , 37, 224-230	1.9	12
105	Instant Cu-to-Cu direct bonding enabled by <111>-oriented nanotwinned Cu bumps. <i>Japanese Journal of Applied Physics</i> , <b>2020</b> , 59, SBBA03	1.4	11
104	Blocking hillock and whisker growth by intermetallic compound formation in Sn-0.7Cu flip chip solder joints under electromigration. <i>Journal of Applied Physics</i> , <b>2010</b> , 107, 093715	2.5	11
103	Effect of deposition temperature on mechanical properties of nanotwinned Cu fabricated by rotary electroplating. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , <b>2021</b> , 811, 141065	5.3	11
102	Mechanism of electromigration-induced failure in flip-chip solder joints with a 10- $\mu$ m-thick Cu under-bump metallization. <i>Journal of Materials Research</i> , <b>2007</b> , 22, 763-769	2.5	10
101	Electromigration studies of flip chip Sn95/Sb5 solder bumps on Cr/Cr-Cu/Cu under-bump metallization. <i>Journal of Electronic Materials</i> , <b>2003</b> , 32, 1278-1283	1.9	10
100	Growth of Highly (111)-Oriented Nanotwinned Cu with the Addition of Sulfuric Acid in CuSO <sub>4</sub> Based Electrolyte. <i>Crystal Growth and Design</i> , <b>2019</b> , 19, 81-89	3.5	10
99	Electrodeposition of slanted nanotwinned Cu foils with high strength and ductility. <i>Electrochimica Acta</i> , <b>2021</b> , 389, 138640	6.7	10
98	Electromigration immortality of purely intermetallic micro -bump for 3D integration <b>2015</b> ,		9
97	Effect of Cu Ion Concentration on Microstructures and Mechanical Properties of Nanotwinned Cu Foils Fabricated by Rotary Electroplating. <i>Nanomaterials</i> , <b>2021</b> , 11,	5.4	9
96	Tensile Properties of -Oriented Nanotwinned Cu with Different Columnar Grain Structures. <i>Materials</i> , <b>2020</b> , 13,	3.5	8
95	Thermomigration of Ti in flip-chip solder joints. <i>Scripta Materialia</i> , <b>2012</b> , 66, 694-697	5.6	8
94	Generic rules to achieve bump electromigration immortality for 3D IC integration <b>2013</b> ,		8
93	Effect of Sn grain orientation and strain distribution in 20- $\mu$ m-diameter microbumps on crack formation under thermal cycling tests. <i>Electronic Materials Letters</i> , <b>2017</b> , 13, 457-462	2.9	8

92	Kinetic study of the intermetallic compound formation between eutectic Sn <sub>3</sub> .5Ag alloys and electroplated Ni metallization in flip-chip solder joints. <i>Journal of Materials Research</i> , <b>2012</b> , 27, 1169-1177 <sup>2.5</sup>	8
91	Magnetostructural phase transition in electroless-plated Ni nanoarrays. <i>Journal of Applied Physics</i> , <b>2011</b> , 109, 113905	2.5 8
90	Microstructural Evolution During Electromigration in Eutectic SnAg Solder Bumps. <i>Journal of Materials Research</i> , <b>2005</b> , 20, 2432-2442	2.5 8
89	Kinetic study of grain growth in highly (111)-preferred nanotwinned copper films. <i>Materials Characterization</i> , <b>2020</b> , 168, 110545	3.9 8
88	Electromigration failure mechanisms of <1 1 1> -oriented nanotwinned Cu redistribution lines with polyimide capping. <i>Results in Physics</i> , <b>2021</b> , 24, 104154	3.7 8
87	Temperature and current-density distributions in flip-chip solder joints with Cu traces. <i>Journal of Electronic Materials</i> , <b>2006</b> , 35, 947-953	1.9 7
86	Hermetic Packaging Using Eutectic SnPb Solder and Cr/Ni/Cu Metallurgy Layer. <i>IEEE Transactions on Advanced Packaging</i> , <b>2006</b> , 29, 760-765	7
85	Enhanced Hole Mobility and Reliability of Panel Epi-Like Silicon Transistors Using Backside Green Laser Activation. <i>IEEE Electron Device Letters</i> , <b>2007</b> , 28, 790-792	4.4 7
84	Measurement of electromigration parameters of lead-free SnAg3.5 solder using U-groove lines. <i>Journal of Materials Research</i> , <b>2005</b> , 20, 2831-2837	2.5 7
83	Deformation induced columnar grain rotation in nanotwinned metals. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , <b>2020</b> , 797, 140045	5.3 7
82	Anisotropic grain growth to eliminate bonding interfaces in direct copper-to-copper joints using -oriented nanotwinned copper films. <i>Thin Solid Films</i> , <b>2018</b> , 667, 55-58	2.2 7
81	Effect of Si-die dimensions on electromigration failure time of flip-chip solder joints. <i>Materials Chemistry and Physics</i> , <b>2011</b> , 127, 85-90	4.4 6
80	Interfacial Reaction Between Eutectic Sn-Pb Solder and Electroplated-Ni as well as Electroless-Ni Metallization During Reflow. <i>Journal of Electronic Materials</i> , <b>2009</b> , 38, 338-344	1.9 6
79	Effect of current crowding on contact failure in heavily doped n+- and p+-silicon-on-insulator. <i>Journal of Materials Research</i> , <b>2000</b> , 15, 2387-2392	2.5 6
78	Effect of thermal stress on anisotropic grain growth in nano-twinned and un-twinned copper films. <i>Acta Materialia</i> , <b>2021</b> , 206, 116637	8.4 6
77	Analysis of bump resistance and current distribution of ultra-fine-pitch microbumps. <i>Microelectronics Reliability</i> , <b>2013</b> , 53, 41-46	1.2 5
76	Measurement of electromigration activation energy in eutectic SnPb and SnAg flip-chip solder joints with Cu and Ni under-bump metallization. <i>Journal of Materials Research</i> , <b>2010</b> , 25, 1847-1853	2.5 5
75	Nonuniform and Negative Marker Displacements Induced by Current Crowding During Electromigration in Flip-Chip Sn-0.7Cu Solder Joints. <i>Journal of Electronic Materials</i> , <b>2009</b> , 38, 2443-2448 <sup>1.9</sup>	5

74	Enhanced dopant activation and elimination of end-of-range defects in BF <sub>2</sub> <sup>+</sup> -implanted silicon-on-insulator by high-density current. <i>Applied Physics Letters</i> , <b>2001</b> , 79, 3971-3973	3.4	5
73	Twist-type silicon bicrystals and compliant substrates prepared from silicon-on-insulator wafers. <i>Philosophical Magazine A: Physics of Condensed Matter, Structure, Defects and Mechanical Properties</i> , <b>2000</b> , 80, 881-891		5
72	Failure Mechanisms of Cu-Cu Bumps under Thermal Cycling. <i>Materials</i> , <b>2021</b> , 14,	3.5	5
71	High Electromigration Lifetimes of Nanotwinned Cu Redistribution Lines <b>2019</b> ,		4
70	Low-Resistance and high-Strength Copper Direct Bonding in no-Vacuum Ambient Using Highly (111)-Oriented Nano-Twinned Copper <b>2019</b> ,		4
69	Experimental and simulation analysis of concave-down resistance curve during electromigration in solder joints. <i>Journal of Applied Physics</i> , <b>2014</b> , 115, 083707	2.5	4
68	Electromigration Failure Mechanism in Sn-Cu Solder Alloys with OSP Cu Surface Finish. <i>Journal of Electronic Materials</i> , <b>2012</b> , 41, 2502-2507	1.9	4
67	Coupled microstructural and magnetic transition in Co-doped Ni nano-arrays. <i>Journal of Applied Physics</i> , <b>2011</b> , 110, 073913	2.5	4
66	Joule heating effect under accelerated electromigration in flip-chip solder joints		4
65	Fabrication of ordered Ta <sub>2</sub> O <sub>5</sub> nanodots using an anodic aluminum oxide template on Si substrate. <i>Journal of Materials Research</i> , <b>2007</b> , 22, 1064-1071	2.5	4
64	Microstructure evolution during electromigration in eutectic SnPb solder bumps. <i>Journal of Materials Research</i> , <b>2004</b> , 19, 2394-2401	2.5	4
63	Effect of anisotropic grain growth on improving the bonding strength of $\langle 111 \rangle$ -oriented nanotwinned copper films. <i>Materials Science &amp; Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , <b>2021</b> , 804, 140754	5.3	4
62	Effect of Intermetallic Compound Bridging on the Cracking Resistance of Sn <sub>2.3</sub> Ag Microbumps with Different UBM Structures under Thermal Cycling. <i>Metals</i> , <b>2021</b> , 11, 1065	2.3	4
61	Effect of Reverse Currents during Electroplating on the $\langle 111 \rangle$ -Oriented and Nanotwinned Columnar Grain Growth of Copper Films. <i>Crystal Growth and Design</i> , <b>2020</b> , 20, 3834-3841	3.5	3
60	Effect of joint shape controlled by thermocompression bonding on the reliability performance of 60 $\mu$ m-pitch solder micro bump interconnections <b>2014</b> ,		3
59	Temperature-dependent failure mechanism of SnAg solder joints with Cu metallization after current stressing: Experimentation and analysis. <i>Journal of Applied Physics</i> , <b>2013</b> , 114, 113711	2.5	3
58	Investigation of Void Nucleation and Propagation in the Joule Heating Effect During Electromigration in Flip-Chip Solder Joints. <i>Journal of Electronic Materials</i> , <b>2010</b> , 39, 2489-2494	1.9	3
57	Study of electromigration in eutectic SnPb solder stripes using the edge displacement method. <i>Journal of Electronic Materials</i> , <b>2006</b> , 35, 1655-1659	1.9	3



56	Anisotropic Grain Growth in (111) Nanotwinned Cu Films by DC Electrodeposition. <i>Materials</i> , <b>2019</b> , 13,	3.5	3
55	Low-temperature and low-pressure direct copper-to-copper bonding by highly (111)-oriented nanotwinned Cu <b>2016</b> ,		3
54	Fabrication of (111)-Oriented Nanotwinned Au Films for Au-to-Au Direct Bonding. <i>Materials</i> , <b>2018</b> , 11,	3.5	3
53	Atomic-Scale Investigation of Electromigration with Different Directions of Electron Flow into High-Density Nanotwinned Copper through In Situ HRTEM. <i>Acta Materialia</i> , <b>2021</b> , 219, 117250	8.4	3
52	A kinetic model of copper-to-copper direct bonding under thermal compression. <i>Journal of Materials Research and Technology</i> , <b>2021</b> , 15, 2332-2344	5.5	3
51	Effect of Sn Grain Orientation on Formation of Cu <sub>6</sub> Sn <sub>5</sub> Intermetallic Compound Under Current Stressing. <i>Journal of Electronic Materials</i> , <b>2017</b> , 46, 2179-2184	1.9	2
50	Fabrication and Characterization of <100>-Oriented Quasi-single Crystalline Cu Lines. <i>Crystal Growth and Design</i> , <b>2020</b> , 20, 1485-1490	3.5	2
49	Formation of Porous Cu <sub>3</sub> Sn by High-Temperature Current Stressing. <i>ECS Journal of Solid State Science and Technology</i> , <b>2016</b> , 5, P461-P463	2	2
48	Innovative methodologies of circuit edit by focused ion beam (FIB) on wafer-level chip-scale-package (WLCSP) devices. <i>Journal of Materials Science: Materials in Electronics</i> , <b>2011</b> , 22, 1536-1541	2.1	2
47	Gate-to-drain capacitance verifying the continuous-wave green laser crystallization n-TFT trapped charges distribution under dc voltage stress. <i>Applied Physics Letters</i> , <b>2009</b> , 95, 253503	3.4	2
46	The effect of pre-aging on the electromigration of flip-chip SnAg solder joints. <i>Jom</i> , <b>2008</b> , 60, 77-80	2.1	2
45	Effect of Migration and Condensation of Pre-existing Voids on Increase in Bump Resistance of Flip Chips on Flexible Substrates during Electromigration. <i>Journal of Electronic Materials</i> , <b>2008</b> , 37, 962-967	1.9	2
44	Effect of Al trace dimension on electromigration failure time of flip-chip solder joints. <i>Journal of Electronic Materials</i> , <b>2006</b> , 35, 1740-1744	1.9	2
43	Electromigration at the high-Pb eutectic SnPb solder interface. <i>Journal of Materials Research</i> , <b>2004</b> , 19, 550-556	2.5	2
42	Electromigration failure mechanism of Sn96.5Ag3.5 flip-chip solder bumps		2
41	Low Temperature Cu-to-Cu Bonding in Non-vacuum Atmosphere with Thin Gold Capping on Highly (111) Oriented Nanotwinned Copper. <i>Journal of Electronic Materials</i> , <b>2020</b> , 49, 13-17	1.9	2
40	Electromigration and Temperature Cycling Tests of Cu-Cu Joints Fabricated by Instant Copper Direct Bonding <b>2021</b> ,		2
39	Hybrid Bonding of Nanotwinned Copper/organic Dielectrics with Low Thermal Budget <b>2021</b> ,		2

38	Ultra-high annealing twin density in $\gamma$ -oriented Cu films. <i>Scripta Materialia</i> , <b>2020</b> , 184, 46-51	5.6	2
37	A solid state process to obtain high mechanical strength in Cu-to-Cu joints by surface creep on (111)-oriented nanotwins Cu. <i>Journal of Materials Research and Technology</i> , <b>2021</b> , 14, 719-730	5.5	2
36	Low-temperature Cu-to-Cu direct bonding enabled by highly (111)- oriented and nanotwinned Cu <b>2019</b> ,		1
35	Investigation of Joule heating effect in various stages of electromigration in flip-chip solder joints by infrared microscopy <b>2010</b> ,		1
34	Direct measurement of hot-spot temperature in flip-chip solder joints with Cu columns under current stressing using infrared microscopy <b>2009</b> ,		1
33	Electromigration induced failure in SnAg/sub 3.8/Cu/sub 0.7/ solder joints for flip chip technology		1
32	Microstructure analysis and tensile strength of low temperature Cu bonds using highly- Cu <b>2021</b> ,		1
31	Enhancement of electromigration lifetime of copper lines by eliminating nanoscale grains in highly $\gamma$ -oriented nanotwinned structures. <i>Journal of Materials Research and Technology</i> , <b>2021</b> , 15, 6690-6699	5.5	1
30	Shearing Characteristics of Cu-Cu Joints Fabricated by Two-Step Process Using Highly $\gamma$ -Oriented Nanotwinned Cu. <i>Metals</i> , <b>2021</b> , 11, 1864	2.3	1
29	Effect of oxidation on electromigration in 2- $\mu$ m Cu redistribution lines capped with polyimide. <i>Results in Physics</i> , <b>2021</b> , 31, 105048	3.7	1
28	Hybrid Cu-Cu Bonding with Non-Conductive Paste and Highly (111)-Oriented Nanotwinned Copper <b>2020</b> ,		1
27	Effect of Bonding Strength on Electromigration Failure in Cu-Cu Bumps. <i>Materials</i> , <b>2021</b> , 14,	3.5	1
26	Tuning Stress in Cu Thin Films by Developing Highly (111)-Oriented Nanotwinned Structure. <i>Journal of Electronic Materials</i> , <b>2020</b> , 49, 109-115	1.9	1
25	Fabrication and characteristics of highly [Formula: see text]-oriented nanotwinned Au films. <i>Scientific Reports</i> , <b>2020</b> , 10, 16566	4.9	1
24	Electromigration in reduced-height solder joints with Cu pillars. <i>Journal of Materials Science: Materials in Electronics</i> , <b>2016</b> , 27, 3715-3722	2.1	1
23	Interfacial void ripening in Cu Cu joints. <i>Materials Characterization</i> , <b>2021</b> , 111459	3.9	1
22	Modeling of abnormal grain growth in (111) oriented and nanotwinned copper. <i>Scientific Reports</i> , <b>2021</b> , 11, 20449	4.9	0
21	Effect of Electroplating Current Density on Tensile Properties of Nanotwinned Copper Foils. <i>Journal of the Electrochemical Society</i> , <b>2022</b> , 169, 042503	3.9	0

20	Hybrid Cu-to-Cu bonding with nano-twinned Cu and non-conductive paste. <i>Journal of Materials Research and Technology</i> , <b>2022</b> , 18, 859-871	5.5	o
19	Direct measurement of hot-spot temperature in flip-chip solder joints with Cu columns under current stressing using infrared microscopy. <i>Materials Research Society Symposia Proceedings</i> , <b>2010</b> , 1249, 1		
18	Investigation of Joule heating effect in various stages of electromigration in flip-chip solder joints by infrared microscopy. <i>Materials Research Society Symposia Proceedings</i> , <b>2010</b> , 1249, 1		
17	Effect of Al-Trace Width on the Electromigration Failure Time of Flip-Chip Solder Joints. <i>Journal of Electronic Materials</i> , <b>2010</b> , 39, 2316-2323	1.9	
16	Mechanical strengthening of nanotwinned Cu films with Ag solid solution. <i>Materials Letters</i> , <b>2022</b> , 313, 131775	3.3	
15	Thermomigration in SnPb and Pb-Free Flip-Chip Solder Joints 423-442		
14	Electromigration in Pb-Free Solder Joints in Electronic Packaging 375-399		
13	Electromigration <b>2021</b> , 221-247		
12	Solid-State Reactions Between Copper and Solder <b>2021</b> , 105-125		
11	2.5D/3D System-in-Packaging Integration <b>2021</b> , 173-190		
10	Artificial Intelligence in Electronic Packaging Reliability <b>2021</b> , 303-306		
9	Essence of Integrated Circuits and Packaging Design <b>2021</b> , 127-147		
8	Randomly-Oriented and (111) Uni-directionally-Oriented Nanotwin Copper <b>2021</b> , 61-90		
7	Stress-Migration <b>2021</b> , 257-280		
6	Cu-to-Cu and Other Bonding Technologies in Electronic Packaging <b>2021</b> , 17-60		
5	Irreversible Processes in Electronic Packaging Technology <b>2021</b> , 191-219		
4	Thermomigration <b>2021</b> , 249-256		
3	Performance, Power, Thermal, and Reliability <b>2021</b> , 149-172		

2 Failure Analysis **2021**, 281-302

1 Artificial intelligence deep learning for 3D IC reliability prediction.. *Scientific Reports*, **2022**, 12, 6711 4.9