Ganesh Subbarayan

List of Publications by Year
in descending order

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138	1,498	21	33
papers	citations	h-index	g-index
		331670	395702

141	141	141	801
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A Mechanistic Model for Plastic Metal Line Ratcheting Induced BEOL Cracks in Molded Packages. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2022, 12, 522-536.	2.5	1
2	A procedure for efficient generation and behavioral evaluation of ultraâ€packed ellipsoidal particle systems. International Journal for Numerical Methods in Engineering, 2022, 123, 1547-1575.	2.8	1
3	A Computational Strategy for Code- and Mesh-Agnostic Nonlinear Globalâ€"Local Analysis. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2022, 12, 740-759.	2.5	2
4	Efficient Local Refinement near Parametric Boundaries Using kd-Tree Data Structure and Algebraic Level Sets. Algorithms, 2022, 15, 245.	2.1	1
5	Parametric stitching for smooth coupling of subdomains with non-matching discretizations. Computer Methods in Applied Mechanics and Engineering, 2021, 373, 113519.	6.6	3
6	Singular enrichment for multi-material corners with application to assessing the risk of fracture in semiconductor devices. Engineering Fracture Mechanics, 2021, 248, 107739.	4.3	6
7	Improved Dixon Resultant for Generating Signed Algebraic Level Sets and Algebraic Boolean Operations on Closed Parametric Surfaces. CAD Computer Aided Design, 2021, 135, 103004.	2.7	3
8	Influence of Pad Surface Finish on the Microstructure Evolution and Intermetallic Compound Growth in Homogeneous Sn-Bi and Sn-Bi-Ag Solder Interconnects. Journal of Electronic Materials, 2021, 50, 6615-6628.	2.2	8
9	Interface balance laws, phase growth and nucleation conditions for multiphase solids with inhomogeneous surface stress. Continuum Mechanics and Thermodynamics, 2020, 32, 987-1010.	2.2	3
10	Reliability of Metal-Dielectric Structures Under Intermittent Current Pulsing. , 2020, , .		1
11	A Mechanistic Model for Plastic Metal Line Ratcheting Induced BEOL Cracks in Molded Packages. , 2020, , .		4
12	Algebraic Point Projection for Immersed Boundary Analysis on Low Degree NURBS Curves and Surfaces. Algorithms, 2020, 13, 82.	2.1	4
13	Fatigue Life of Sn3.0Ag0.5Cu Solder Alloy Under Combined Cyclic Shear and Constant Tensile/Compressive Loads. Journal of Electronic Packaging, Transactions of the ASME, 2020, 142, .	1.8	7
14	Topological Modifications through Boolean Compositions on Algerbraic Level Sets Constructed from B-rep Models. Computer-Aided Design and Applications, 2020, 17, 1177-1192.	0.6	1
15	Meshfree CAD-CAE Integration through Immersed B-rep Model and Enriched Isogeometric Analysis. Computer-Aided Design and Applications, 2020, 17, 1193-1214.	0.6	3
16	A phase field computational procedure for electromigration with specified contact angle and diffusional anisotropy. Computational Mechanics, 2020, 66, 373-390.	4.0	10
17	Comparative Evaluation of Algorithms for Achieving Ultrapacked Thermal Greases: Microstructural Models and Effective Behavior. Journal of Electronic Packaging, Transactions of the ASME, 2020, 142, .	1.8	1
18	Adhesive toughness and instability in bonded heterogeneous films. International Journal of Solids and Structures, 2019, 169, 41-54.	2.7	19

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19	Maximum Entropy Models for Fatigue Damage in Metals with Application to Low-Cycle Fatigue of Aluminum 2024-T351. Entropy, 2019, 21, 967.	2.2	19
20	Estimating the Modulus and Yield Strength of the Top-Layer Film on Multilayer BEOL Stacks. IEEE Transactions on Device and Materials Reliability, 2018, 18, 438-449.	2.0	0
21	Characterization of Rate-Dependent Constitutive Behavior of Copper Free-Air Ball and Its Use for Wire Bonding Process Simulation. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2018, 8, 1092-1106.	2.5	1
22	Estimation of Effective Thermal and Mechanical Properties of Particulate Thermal Interface Materials by a Random Network Model. Journal of Electronic Packaging, Transactions of the ASME, 2018, 140, .	1.8	7
23	Estimation of Effective Thermal and Mechanical Properties of Particulate Thermal Interface Materials (TIMs) by a Random Network Model. , 2017, , .		1
24	Signed algebraic level sets on NURBS surfaces and implicit Boolean compositions for isogeometric CADâ€“CAE integration. CAD Computer Aided Design, 2017, 82, 112-126.	2.7	13
25	Simultaneous thermal/flow characterization of thermal interface materials. , 2016, , .		0
26	Estimation of passivated metal stack modulus through simulations of Micro-indentation. , 2016, , .		1
27	A framework for studying dynamics and stability of diffusiveâ€“reactive interfaces with application to Cu ₆ Sn ₅ intermetallic compound growth. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2016, 472, 20160134.	2.1	3
28	An Assessment of Risk of Fracture During Wirebond Over Active Circuits on ULK Dies. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2016, 6, 314-325.	2.5	1
29	DiffCode: A System for the Simulation of Diffusion Driven Phase Evolution in Solids. , 2015, , .		3
30	Simulations of arbitrary crack path deflection at a material interface in layered structures. Engineering Fracture Mechanics, 2015, 141, 124-139.	4.3	19
31	HiGeoM: A symbolic framework for a unified function space representation of trivariate solids for isogeometric analysis. CAD Computer Aided Design, 2015, 65, 34-50.	2.7	2
32	ISOCOMP: Unified geometric and material composition for optimal topology design. Structural and Multidisciplinary Optimization, 2015, 51, 687-703.	3.5	10
33	A sharp interface isogeometric solution to the Stefan problem. Computer Methods in Applied Mechanics and Engineering, 2015, 284, 556-582.	6.6	10
34	Maximum entropy fracture model and its use for predicting cyclic hysteresis in Sn3.8Ag0.7Cu and Sn3.0Ag0.5 solder alloys. Microelectronics Reliability, 2014, 54, 2513-2522.	1.7	14
35	A model for the free (top) surface deformation of through-silicon vias. , 2014, , .		1
36	Characterization of cu free air ball constitutive behavior using microscale compression test. , 2014, , .		1

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37	Simulations of damage and fracture in ULK under pad structures during Cu wirebond process. , 2014, , .		2
38	Algebraic distance estimations for enriched isogeometric analysis. Computer Methods in Applied Mechanics and Engineering, 2014, 280, 28-56.	6.6	13
39	Analytical estimates of stress around a doubly periodic arrangement of through-silicon vias. Microelectronics Reliability, 2013, 53, 63-69.	1.7	8
40	Optimal topological design through insertion and configuration of finite-sized heterogeneities. International Journal of Solids and Structures, 2013, 50, 429-446.	2.7	2
41	Effect of pad surface finish and reflow cooling rate on the microstructure and the mechanical behavior of SnAgCu solder alloys. Microelectronics Reliability, 2013, 53, 892-898.	1.7	5
42	An Improved Efficient Network Model for Determining the Effective Thermal Conductivity of Particulate Thermal Interface Materials. Journal of Electronic Packaging, Transactions of the ASME, 2013, 135, .	1.8	4
43	Algebraic Distance Field for Meshless Analysis of Free Form CAD Models. Computer-Aided Design and Applications, 2013, 10, 427-443.	0.6	0
44	Simulations of Deformation and Stress During Copper Wirebond on ULK Chips. , 2013, , .		0
45	Quantification of Behavioral Uncertainty Resulting from Insertion of Heterogeneity into Microstructure. , 2012, , .		0
46	Microstructurally Adaptive Model for Primary and Secondary Creep of Sn-Ag-Based Solders. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2012, 2, 256-265.	2.5	43
47	Simulations of Damage, Crack Initiation, and Propagation in Interlayer Dielectric Structures: Understanding Assembly-Induced Fracture in Dies. IEEE Transactions on Device and Materials Reliability, 2012, 12, 241-254.	2.0	21
48	Mechanical and thermal response of compliant Thermal Interface Materials under cyclic loading. , 2012, , .		0
49	Maximum entropy fracture model and fatigue fracture of mixed SnPb/Sn3.0Ag0.5Cu solder alloys. , 2012, , .		0
50	A Hybrid Hierarchical Procedure for Composing Trivariate NURBS Solids. Computer-Aided Design and Applications, 2012, 9, 215-226.	0.6	3
51	An Information Theoretic Argument on the Form of Damage Accumulation in Solids. Mechanics of Advanced Materials and Structures, 2012, 19, 184-195.	2.6	4
52	Isogeometric enriched field approximations. Computer Methods in Applied Mechanics and Engineering, 2012, 245-246, 1-21.	6.6	26
53	Topological design of channels for squeeze flow optimization of thermal interface materials. International Journal of Heat and Mass Transfer, 2012, 55, 3560-3575.	4.8	10
54	Maximum-Entropy Principle for Modeling Damage and Fracture in Solder Joints. Journal of Electronic Materials, 2012, 41, 398-411.	2.2	24

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55	Constitutive Behavior of Mixed Sn-Pb/Sn-3.0Ag-0.5Cu Solder Alloys. Journal of Electronic Materials, 2012, 41, 596-610.	2.2	9
56	Estimating Kapitza Resistance Between ${m Si}hbox{-}{m SiO}_{2}$ Interface Using Molecular Dynamics Simulations. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2011, 1, 1132-1139.	2.5	19
57	Cooling rate, pad finish effects on mechanical behavior of SnAgCu alloys. , 2011, , .		1
58	Aging aware constitutive models for SnAgCu solder alloys. , 2011, , .		5
59	Estimating the Yield Strength of Thin Metal Films Through Elasticâ€"Plastic Buckling-Induced Debonding. IEEE Transactions on Device and Materials Reliability, 2011, 11, 358-361.	2.0	2
60	Modeling Fracture in Dielectric Stacks due to Chip-Package Interaction: Impact of Dielectric Material Selection. , 2011, , .		0
61	NURBS representational strategies for tracking moving boundaries and topological changes during phase evolution. Computer Methods in Applied Mechanics and Engineering, 2011, 200, 2594-2610.	6.6	3
62	Singularities at Solder Joint Interfaces and Their Effects on Fracture Models. Journal of Electronic Packaging, Transactions of the ASME, 2010, 132, .	1.8	3
63	On instability-induced debond initiation in thin film systems. Engineering Fracture Mechanics, 2010, 77, 1298-1313.	4.3	22
64	A non-contact, thermally-driven buckling delamination test to measure interfacial fracture toughness of thin film systems. Thin Solid Films, 2010, 518, 2056-2064.	1.8	15
65	Coordinated synthesis of hierarchical engineering systems. Computer Methods in Applied Mechanics and Engineering, 2010, 199, 392-404.	6.6	8
66	Development of a microstructurally adaptive unified primary-cumsecondary creep model for SAC387 solder joints. , 2010, , .		0
67	Buckling, wrinkling and debonding in thin film systems. , 2010, , .		1
68	Squeeze flow characterization of particle-filled polymeric materials through image correlation. , 2010, , .		0
69	Hierarchical Partition of Unity Field Compositions (HPFC) for Optimal Design in the Presence of Cracks. Mechanics of Advanced Materials and Structures, 2010, 17, 467-480.	2.6	6
70	A Theoretical and Computational Framework for Modeling Diffusion-Driven Boundary Motion Without Remeshing. , 2010, , 335-342.		0
71	Improved Solder Joint Fatigue Models Through Reduced Geometry Dependence of Empirical Fits. Journal of Electronic Packaging, Transactions of the ASME, 2009, 131, .	1.8	0
72	Microstructural coarsening in Sn-Ag-based solders and its effects on mechanical properties. Jom, 2009, 61, 29-38.	1.9	83

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73	Hierarchical field compositions for simulations of near-percolation thermal transport in particulate materials. Computer Methods in Applied Mechanics and Engineering, 2009, 198, 657-668.	6.6	8
74	Constitutive and Aging Behavior of Sn3.0Ag0.5Cu Solder Alloy. IEEE Transactions on Electronics Packaging Manufacturing, 2009, 32, 221-232.	1.4	95
75	Thermally induced wrinkling in thin-film stacks on patterned substrates. IBM Journal of Research and Development, 2009, 53, 12:1-12:10.	3.1	2
76	Multiscale modeling for reliability assessment in microelectronic systems. , 2009, , .		0
77	The Effect of Polydispersivity on the Thermal Conductivity of Particulate Thermal Interface Materials. IEEE Transactions on Components and Packaging Technologies, 2009, 32, 424-434.	1.3	10
78	Predicting Crack Growth and Fatigue Lives of QFN Solder Joints Using a Multiscale Fracture Model. , 2009, , .		0
79	Thermal Solution Maps: A Strategy for Thermal Design of Three-Dimensional Packages. Journal of Electronic Packaging, Transactions of the ASME, 2009, 131, .	1.8	4
80	Mechanistic Model for Aging Influenced Steady State Flow Behavior of Sn3.8Ag0.7Cu Solder Alloys. , 2009, , .		4
81	Estimating Kapitza resistance between Si-SiO<inf>2</inf> interface using molecular dynamics simulations. Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, 2008, , .	0.0	4
82	An Efficient Network Model for Determining the Effective Thermal Conductivity of Particulate Thermal Interface Materials. IEEE Transactions on Components and Packaging Technologies, 2008, 31, 611-621.	1.3	44
83	Constitutive Behavior of Sn3.8Ag0.7Cu and Sn1.0Ag0.5Cu Alloys at Creep and Low Strain Rate Regimes. IEEE Transactions on Components and Packaging Technologies, 2008, 31, 622-633.	1.3	87
84	Singularities at solder joint interfaces and their effects on fracture models: Part II. Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, 2008, , .	0.0	1
85	A Nonlinear Fracture Mechanics Approach to Modeling Fatigue Crack Growth in Solder Joints. Journal of Electronic Packaging, Transactions of the ASME, 2008, 130, .	1.8	7
86	Joint Scale Dependence of Aging Kinetics in Sn-Ag-Cu Solders. , 2008, , .		12
87	Singularities at solder joint interfaces and their effects on fracture models: Part I. Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, 2008, , .	0.0	2
88	Effects of Dwell Time on the Fatigue Life of Sn3.8Ag0.7Cu and Sn3.0Ag0.5Cu Solder Joints During Simulated Power Cycling. , 2007, , .		2
89	Fatigue Crack Growth and Life Descriptions of Sn3.8Ag0.7Cu Solder Joints: A Computational and Experimental Study. , 2007, , .		4
90	Constitutive Behavior of Sn3.8Ag0.7Cu and Sn1.0Ag0.5Cu Alloys at Creep and Low Strain Rate Regimes. , 2007, , 183.		3

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91	CAD inspired hierarchical partition of unity constructions for NURBS-based, meshless design, analysis and optimization. International Journal for Numerical Methods in Engineering, 2007, 72, 1452-1489.	2.8	35
92	A meshless, compositional approach to shape optimal design. Computer Methods in Applied Mechanics and Engineering, 2007, 196, 2130-2146.	6.6	25
93	A study of multiple singularities in multi-material wedges and their use in analysis of microelectronic interconnect structures. Engineering Fracture Mechanics, 2007, 74, 416-430.	4.3	17
94	Material behavior uncertainty in the design of bonded systems â€" Part I: Shear displacement and stress prediction. Materials & Design, 2007, 28, 2706-2711.	5.1	0
95	Material behavior uncertainty in the design of bonded systems â€" Part II: Exhaustive materials characterization and design guidelines. Materials & Design, 2007, 28, 2712-2718.	5.1	2
96	A Numerical Study of Transport in a Thermal Interface Material Enhanced With Carbon Nanotubes. Journal of Electronic Packaging, Transactions of the ASME, 2006, 128, 92-97.	1.8	5
97	A Model for Assessing the Shape of Solder Joints in the Presence of PCB and Package Warpage. Journal of Electronic Packaging, Transactions of the ASME, 2006, 128, 184-191.	1.8	5
98	Thermo-elastic properties of dense YSZ and porous Ni-ZrO2 monolithic and isotropic materials. Journal of Materials Science, 2006, 41, 1221-1232.	3.7	26
99	jNURBS: An object-oriented, symbolic framework for integrated, meshless analysis and optimal design. Advances in Engineering Software, 2006, 37, 287-311.	3.8	20
100	A Three-Dimensional Solder Shape Model Incorporating Top Pad Inclination and Misalignment. Journal of Electronic Packaging, Transactions of the ASME, 2006, 128, 291-293.	1.8	3
101	Response surface models for efficient, modular estimation of solder joint reliability in area array packages. Microelectronics Reliability, 2005, 45, 623-635.	1.7	7
102	A hybrid model for computationally efficient fatigue fracture simulations at microelectronic assembly interfaces. International Journal of Solids and Structures, 2005, 42, 4468-4483.	2.7	58
103	Power cycling thermal fatigue of Snâ€"Pb solder joints on a chip scale package. International Journal of Fatigue, 2004, 26, 497-510.	5.7	30
104	Constructive solid analysis: a hierarchical, geometry-based meshless analysis procedure for integrated design and analysis. CAD Computer Aided Design, 2004, 36, 473-486.	2.7	72
105	The effect of model building on the accuracy of fatigue life predictions in electronic packages. Microelectronics Reliability, 2004, 44, 115-127.	1.7	15
106	A Constructive Approach for Heterogeneous Material Modeling and Analysis. Computer-Aided Design and Applications, 2004, 1, 171-178.	0.6	11
107	A study on the variation of effective CTE of printed circuit boards through a validated comparison between strain gages and Moire interferometry. IEEE Transactions on Components and Packaging Technologies, 2003, 26, 712-718.	1.3	14
108	An assessment of change in stress due to cross-sectioning in moir~ interferometric characterization of electronic packages. IEEE Transactions on Components and Packaging Technologies, 2003, 26, 705-711.	1.3	2

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109	A dynamic model for predicting the motion solder droplets during assembly. IEEE Transactions on Components and Packaging Technologies, 2003, 26, 698-704.	1.3	2
110	Predictive reliability models through validated correlation between power cycling and thermal cycling accelerated life tests. Soldering and Surface Mount Technology, 2002, 14, 51-60.	1.5	35
111	An evaluation of back-propagation neural networks for the optimal design of structural systems: Part I. Training procedures. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 2873-2886.	6.6	46
112	An evaluation of back-propagation neural networks for the optimal design of structural systems: Part II. Numerical evaluation. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 2887-2904.	6.6	29
113	Applications of a Decomposed Analysis Procedure for Area-Array Packages. Journal of Electronic Packaging, Transactions of the ASME, 2001, 123, 132-140.	1.8	0
114	Decomposition Techniques for the Efficient Analysis of Area-Array Packages. Journal of Electronic Packaging, Transactions of the ASME, 2000, 122, 13-19.	1.8	8
115	NURBS-based solutions to inverse boundary problems in droplet shape prediction. Computer Methods in Applied Mechanics and Engineering, 2000, 190, 1391-1406.	6.6	30
116	A System for First Order Reliability Estimation of Solder Joints in Area Array Packages. Journal of Electronic Packaging, Transactions of the ASME, 2000, 122, 6-12.	1.8	12
117	LGA Connectors: An Automated Design Technique for a Shrinking Design Space. Journal of Electronic Packaging, Transactions of the ASME, 2000, 122, 247-254.	1.8	4
118	A Reconciliation of Local and Global Models for Bone Remodeling Through Optimization Theory. Journal of Biomechanical Engineering, 2000, 122, 72-76.	1.3	7
119	The accuracy of structural approximations employed in analysis of area array packages. IEEE Transactions on Components and Packaging Technologies, 1999, 22, 525-533.	1.3	13
120	A Two-Body Formulation for Solder Joint Shape Prediction. Journal of Electronic Packaging, Transactions of the ASME, 1998, 120, 302-308.	1.8	9
121	The Effect of Stencil Printing Optimization on Reliability of CBGA and PBGA Solder Joints. Journal of Electronic Packaging, Transactions of the ASME, 1998, 120, 54-60.	1.8	9
122	Maximizing Solder Joint Reliability Through Optimal Shape Design. Journal of Electronic Packaging, Transactions of the ASME, 1997, 119, 149-155.	1.8	9
123	The Impact of Interfacial Adhesion on PTH and Via Stress State. Journal of Electronic Packaging, Transactions of the ASME, 1997, 119, 260-267.	1.8	6
124	A Procedure for Automated Shape and Life Prediction in Flip-Chip and BGA Solder Joints. Journal of Electronic Packaging, Transactions of the ASME, 1996, 118, 127-133.	1.8	32
125	Reliability Simulations for Solder Joints Using Stochastic Finite Element and Artificial Neural Network Models. Journal of Electronic Packaging, Transactions of the ASME, 1996, 118, 148-156.	1.8	36
126	A design for assembly evaluation methodology for photonic systems. IEEE Transactions on Components, Packaging and Manufacturing Technology Part C Manufacturing, 1996, 19, 189-200.	0.4	3

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127	Reliability of metallized ceramic packages. IEEE Transactions on Advanced Packaging, 1996, 19, 685-691.	0.6	5
128	A model for assessing the shape of solder joints in the presence of board warpage and volume variation in area-array packages. , 0, , .		0
129	Issues in low-cost manufacture of reliable optoelectronic systems. , 0, , .		0
130	A comparison between moire interferometry and strain gages for effective CTE measurement in electronic packages. , 0, , .		3
131	The effect of model building on the accuracy of fatigue life predictions in electronic packages. , 0, , .		2
132	An analytical study of transport in a thermal interface material enhanced with carbon nanotubes. , 0, , .		6
133	Powercycling Reliability, Failure Analysis and Acceleration Factors of Pb-Free Solder Joints. , 0, , .		14
134	Solder interconnection specimen design and test control procedure for vaild constitutive modeling of solder alloys. , 0, , .		6
135	Non-Empirical Modeling of Fatigue in Lead-Free Solder Joints: Fatigue Failure Analysis and Estimation of Fracture Parameters. , 0, , .		2
136	A nonlinear fracture mechanics prespective on solder joint failure: going beyond the coffin-manson equation. , 0, , .		3
137	Thermal conductivity of amorphous silica using non-equilibrium molecular dynamics simulations. , 0, , .		0
138	Conservation laws for arbitrary objectives with application to fracture resistant design. International Journal of Fracture, 0, , .	2.2	0