Curriculum Vitae
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Education

12/1989	Ph.D. in Solid Mechanics	Tsinghua University, Beijing, China
11/1986	M.S. in Applied Mechanics	Tianjin University, Tianjin, China
07/1984	B.S. in Applied Mechanics	Tianjin University, Tianjin, China

Appointments

09/2013-present	Professor, Lamar University, Beaumont, Texas
08/2007-08/2013	Associate Professor, Lamar University, Beaumont, Texas
01/2004-08/2007	Senior Staff Engineer, Intel Corporation, Chandler, Arizona
09/2000-12/2003	Senior Member Research Staff, Philips Research, Briarcliff Manor, New York
09/1997-10/2000	Member Technical Staff, Institute of Microelectronics, Singapore
05/1996-09/1997	Visiting Professor, University of British Columbia, Vancouver, Canada
11/1991-09/1997	Professor, Taiyuan University of Technology, Taiyuan, China
04/1994-09/1997	Director of Institute of Applied Mechanics, Taiyuan University of Technology, Taiyuan, China
03/1993-03/1994	Research Fellow, University of Tokyo, Tokyo, Japan
08/1990-04/1994	Associate Chair, Department of Mathematics, Physics and Mechanics, Taiyuan University of Technology, Taiyuan, China
12/1989-11/1991	Assistant Professor, Taiyuan University of Technology, Taiyuan, China

Honors/Awards

- **Outstanding Sustained Technical Contribution Award**, IEEE Society of Component, Packaging and Manufacturing Technology, 2017
- **Larry Lawson Research Fellow**, Lamar University, 2017-2020
- **Best Paper Award,** IEEE Transactions on Component, Packaging and Manufacturing Technology**,** 2017
- **University Scholar**, Lamar University, 2017
- **Nominee, The Minnie Stevens Piper Professor Award**, Minnie Stevens Piper Professor Award Foundation, 2016
- **Faculty Mentor Award,** Lamar University, 2015
- **Presidential Faculty Fellow**, Lamar University, 2015-2016

- **Distinguished Faculty Research Fellow**, Lamar University, 2015-2018
- **Presidential Faculty Fellow**, Lamar University, 2014-2015
- **Global SSL Events of the Year 2012-2013**, International Solid State Lighting Association (ISA), 2013
- **Full Professorship,** early promotion, Lamar University, Beaumont, Texas, 2013
- **Exceptional Technical Achievement Award**, IEEE Components, Packaging and Manufacturing Technology Society. 2011
- Nominee of **Advisor of the Year**, the Center for Academic Success (CAS), Lamar University, 2011
- **Significant Contribution Award**, Electronic Manufacturing and Packaging Technology Society, China Institute of Electronics (CIE-EMPT). 2009
- **Outstanding Contribution Award**, International Conference on Thermal and Thermal-Mechanical Simulation and Experiment in Microelectronics and Microsystems (EuroSimE). 2009
- **Best Paper Award**, IEEE Transactions on Components and Packaging Technologies. 2009
- **IEEE Distinguished Lecturer**, IEEE Components, Packaging and Manufacturing Technologies Society. 2008
- **DRA Award** in recognition of developing fundamental building blocks, methods, and metrologies to understand and quantify moisture related phenomenon and failure, Intel Corporation. 2006
- **Outstanding Team Contribution Award** for mechanistic study of delamination and cracking of ultra-thin chip scale packages, Intel Corporation. 2006
- **Best Presentation Award**, Annual Quality and Reliability Symposium, Intel Corporation. 2006
- **DRA Award** in recognition of pioneering work in delivering mechanistic reliability models for Intel package needs, Intel Corporation. 2005
- **Outstanding Team Contribution** for implementation of a common low-cycle fatigue life model to predict Sn/Pb and lead-free solder joint reliability, Intel Corporation. 2005
- **Excellence Award** for development and deployment of industry leading lead-free packaging technology, Intel Corporation. 2005
- **Star Award**, Outstanding performance. Philips Research. 2002
- **Member of Standing Committee**, All-China Youth Federation. 1994~1997
- **Member of Standing Committee**, Young Scientist Association of China. 1994~1997
- **Recipient of Special Governmental Subsidy for Outstanding Experts** from the State Council, China.1994 ~1997
- **Young Scientist Award**, Shanxi Province, China. 1995
- **Young Faculty Award**, Fok Ying-Tung Education Foundation, Hong Kong. 1994
- **Young Scientist Fellowship**, Japan Society for the Promotion of Science (JSPS), Japan. 1993
- **Ten Outstanding Youth of Shanxi Award**, China. 1991
- One of 30 Nominees in nation for the Title **'Ten Outstanding Youth of China'**, China. 1991
- **Full Professorship,** early promotion, Taiyuan University of Technology, Taiyuan, China. 1991

Current Primary Areas of Research Interest

Characterization, modeling and reliability of materials, components, and systems in micro- and opto-electronics manufacturing and packaging.

Publications

Books

1. van Driel WD, Fan XJ, Zhang GQ (eds.). *Solid State Lighting Reliability Part 2: Components to System*. Springer, New York. 2017.

2. van Driel WD, Fan XJ (eds.). *Solid State Lighting Reliability: Components to System*. Springer, New York. 2012.
3. Fan XJ, Suhir, E. (eds.). *Moisture Sensitivity of Plastic Packages of IC Devices*. Springer, New York, 2010.
4. Zhang GQ, van Driel WD, Fan XJ. *Mechanics of Microelectronics*. Springer, 2006.

Journal Papers

5. Chen LB, Zhou J, Chu HW, Zhang GQ, Fan XJ. A Review on Water Vapor Pressure Model for Moisture Permeable Material Subjected to Rapid Heating. *Applied Mechanics Review* (accepted). 2018.
6. Zhang H, Liu Y, Wang L, Fan JJ, Fan XJ, Sun FL, Zhang GQ New Hermetic Sealing Method for Ceramic Package using Nanosilver Sintering Technology. *Microelectronics Reliability*, 81, 143-149, 2018.
7. Yang N, Yang DG, Chen L, Liu D, Cai M, Fan XJ. Design and adjustment of the graphene work function via size, modification, defects, and doping: a first-principle theory study. *Nanoscale Research Letters*. 12: 642, 2017.
8. Yang N, Yang DG, Chen LB, Liu D, Cai M, and Fan XJ. A First-Principle Theoretical Study of Mechanical and Electronic Properties in Graphene Single-Walled Carbon Nanotube Junctions. *Materials*, 10 (11), 2017.
9. Lu GJ, van Driel WD, Fan XJ, Fan JJ, Qian C, Zhang GQ. Color Shift Acceleration on Mid-Power LED Packages. *Microelectronics Reliability*, 78, 294-298, 2017.
10. Tang HY, Ye HY, Wong CKY, Leung YY, Fan JJ, Chen XP, Fan XJ, GQ Zhang. Overdriving Reliability of Chip Scale Packaged LEDs: Quantitatively Analyzing the Impact of Component, *Microelectronics Reliability*, 78, 197-204, 2017.
11. Qian C, Fan JJ, Fang JY, Yu CH, Ren Y, Fan XJ, and Zhang GQ. Photometric and Colorimetric Assessment of LED Chip Scale Packages by Using a Step-Stress Accelerated Degradation Test (SSADT) Method. *Materials*, 10 (10), 1181. 2017.
12. Hou FZ, Lin TY, Cao LQ, Liu FM, Li J, Fan XJ, Zhang GQ. Experimental Verification and Optimization Analysis of Warpage for Panel-Level Fan-Out Package. *IEEE Transactions on Components, Packaging and Manufacturing Technology,* 7(10), 1721 – 1728, 2017.
13. Tang HY, Ye HY, Chen XP, Qian C, Fan XJ, Zhang GQ. Numerical Thermal Analysis and Optimization of Multi-Chip LED Module Using Response Surface Methodology and Genetic Algorithm. *IEEE Access*, 16459 – 16468. 2017.
14. Fan JJ, Zhang MN, Luo X, Qian C, Fan XJ, Ji A, Zhang GQ. Phosphor-Silicone Interaction Effects in High Power White Light Emitting Diode Packages. *Journal of Materials Science: Materials in Electronics.* 28 (23), pp 17557–17569. 2017.
15. Chen LB, Zhou J, Chu HW, Zhang GQ, Fan XJ. Modeling Nonlinear Moisture Diffusion in Inhomogeneous Media. *Microelectronics Reliability. 75 (2017) 162–170.* 2017.
16. Fan JJ, Mohamed MG, Qian C, Fan XJ, Zhang GQ and Pecht M. Color Shift Failure Prediction for Phosphor-Converted White LEDs by Modeling Features of Spectral Power Distribution with a Nonlinear Filter Approach. *Materials*, *10* (7), 819. 2017.
17. Qian C, Fan JJ, Fan XJ and Zhang GQ. Prediction of Lumen Depreciation and Color Shift for Phosphor-converted White Light-emitting Diodes Based on A Spectral Power Distribution Analysis Method. *IEEE Access*, 5, 24054 - 24061. 2017.
18. Sun B, Fan XJ, Li L, Ye HY, van Driel W and Zhang GQ. A Reliability Prediction for Integrated LED Lamp with Electrolytic Capacitor-Free Driver. *IEEE Transactions on Components, Packaging and Manufacturing Technology,* 7(7), 1081-1088. 2017.
19. Fan JJ, Yu C, Qian C, Fan XJ, Zhang GQ. Thermal/luminescence characterization and degradation mechanism analysis on phosphor-converted white LED chip scale packages. *Microelectronics Reliability*. 74, 179–185. 2017.

20. Qian C, Li Y, Fan JJ, Fan XJ, Fu J, Zhao L, Zhang GQ. Studies of the light output properties for a GaN based blue LED using an electro-optical simulation method. *Microelectronics Reliability*. 74, 173–178. 2017.
21. Sun B, Fan XJ, Ye HY, Fan JJ, Qian C, van Driel WD, Zhang GQ. A novel lifetime prediction for integrated LED lamps by electronic-thermal simulation. *Reliability Engineering and System Safety*. Reliability Engineering and System Safety 163, 14–21. 2017.
22. Kijkanjanapaiboon K, Xie M, Zhou J, Fan XJ. Investigation of Dimensional and Heat Source Effects in Lock-In Thermography Applications in Semiconductor Packages. *Applied Thermal Engineering* 113 (2017) 673–683. 2017.
23. Lu GJ, van Driel WD, Fan XJ, Mehr, MY, Fan JJ, Qian C, Jansen KMB, Zhang GQ, Color shift and mechanism investigation on the PMMA diffuser used in LED-based luminaires. *Optical Materials*. 54, 282–287, 2016.
24. Huang JL, Golubovićb DS, Koh S, Yang DG, Lie XP, Fan XJ, Zhang GQ. Lumen degradation modeling of white-light LEDs in step stress accelerated degradation test. *Reliability Engineering & System Safety*. 154, 152–159. 2016.
25. Sun B, Fan XJ , Qian C, Zhang GQ. PoF-Simulation-Assisted Reliability Prediction for Electrolytic Capacitor in LED Drivers. *IEEE Transactions on Industrial Electronics*, 63(11), 6726 - 6735. 2016.
26. Shen Y, Zhang L. Zhu WH, Zhou J, Fan XJ. Finite-element analysis and experimental test for a capped-die flip-chip package design, *IEEE Transactions on Components, Packaging and Manufacturing Technology*. 6(9), 1308 – 1316. 2016.
27. Ye HY, Leung YY, Wong KY, Lin K, Chen XP, Fan JJ, Kjelstrup S, Fan XJ, Zhang GQ. Thermal Inductance in GaN Devices. *IEEE Electron Device Letters*, 37 (11), 1473 – 1476, 2016.
28. Qian C, Fan XJ, Yuan C, Zhang GQ. An accelerated test method of luminous flux depreciation for LED luminaires and lamps, *Reliability Engineering & System Safety*. Volume 147, 84–92. 2016.
29. Ou ZC, Yao XH, Zhang XQ, Fan XJ. Dynamic stability of flexible electronic structures under step loads. *European Journal of Mechanics A: Solids* 58, 247-255. 2016.
30. Poelma RH, Fan XJ, Hu ZY, van Tendeloo G, van Zeijl HW, Zhang GQ, Effects of nanostructure and coating on the mechanics of carbon nanotube arrays, *Advanced Functional Materials*, 26(8), 1233-1242. 2016.
31. Chen L, Adams J, Chu HW, Fan XJ. Modeling of moisture over-saturation and vapor pressure in die-attach film for stacked-die chip scale packages, *Journal of Materials Science: Materials in Electronics*, 27(1), pp 481-488. 2016.
32. Ou ZC, Yao XH, Zhang XQ, Fan XJ. Buckling of a stiff thin film on a compliant substrate under anisotropic biaxial prestrain. *Science China Physics, Mechanics & Astronomy*. 59:624601. 2016.
33. Cai M, Yang DG, Tian KM, Chen WB, Zhang P, Fan XJ, Zhang GQ. A hybrid prediction method on luminous flux maintenance of high-power LED lamps. *Applied Thermal Engineering*, 95(25), 482–490. 2016.
34. Chen XP, Ye HY, Fan XJ, Ren TL, Zhang GQ, A review of small heat pipes for electronics, *Applied Thermal Engineering*, 96(5), 1-17. 2016.
35. Huang JL, Golubovićb DS, Koh S, Yang DG, Li XP, Fan XJ, Zhang GQ. Optical degradation mechanisms of mid-power white-light LEDs in LM-80-08 tests, *Microelectronics Reliability*, 55 (12), Part B, 2654–2662, 2015.
36. Huang JL, Golubović DS, Koh S, Yang DG, Li XP, Fan XJ, and Zhang GQ, Degradation modeling of mid-power white-light LEDs by using Wiener process, *Optical Express*. vol. 23, no. 15, pp. A966-A978. 2015.
37. Huang JL, Golubovic DS, Koh S, Yang DG, Li XP, Fan XJ, Zhang GQ. Rapid degradation of mid-power white-light LEDs in saturated moisture conditions. , *IEEE Transactions on Device and Materials Reliability*. vol. 15, no. 4, pp. 478 – 485, 2015.
38. Huang JL, Golubović DS, Koh S, Yang DG, Li XP, Fan XJ, and Zhang GQ, Degradation mechanisms of mid-power white-light LEDs under high temperature-humidity conditions, *IEEE Transactions on Device and Materials Reliability*. vol. 15, no. 2, pp. 220–228. 2015.

39. Fan JJ, Qian C, Yung KC, Fan XJ, Zhang GQ, Pecht M. Optimal design of life testing for high-brightness white LEDs using the six sigma DMAIC approach, *IEEE Transactions on Device and Materials Reliability*. vol. 15, no. 4, pp. 576 - 587. 2015.
40. Chen L, Chu HW, Fan XJ, A convection-diffusion porous media model for moisture transport in polymer composites: model development and validation. *Journal of Polymer Science Part B: Polymer Physics*. DOI: 10.1002/polb.23784. 53, 1440–1449. 2015.
41. Fan XJ, L Chen, Wong CP, Chu HS, Zhang GQ, Effects of vapor pressure and super-hydrophobic nanocomposite coating on microelectronics reliability. *Engineering*, 1(3): 384–390, 2015.
42. Lu GJ, van Driel WD, Fan XJ, Mehr MY, Fan JJ, Jansen KMB, Zhang GQ, Degradation of Microcellular PET reflective materials used in LED-based products. *Optical Materials*, 49, 79–84, 2015.
43. Lu GJ, Mehr MY, van Driel WD, Fan XJ, Fan JJ, Jansen KMB, and Zhang GQ, Color shift investigations for LED secondary optical designs: comparison between BPA-PC and PMMA, *Optical Materials*. vol. 45, pp. 37–41, 2015.
44. Ou ZC, Yao XH, Zhang XQ, Fan XJ. Wrinkling analysis in a film bonded to a compressible compliant substrate in large deformation. Computers, Materials & Continua, vol.44, no.3, pp.205-221, 2014.
45. Zhu LS, Zhou J, Fan XJ. Rupture and instability of soft films due to moisture vaporization in microelectronic devices. *Computers, Materials & Continua*, vol.39, no.2, pp.113-134, 2014.
46. Poelma RH, Morana B, Vollebregt S, Schlangen E, van Zeijl HW, Fan XJ, Zhang GQ. Tailoring the mechanical properties of high-aspect-ratio carbon nanotube arrays using amorphous silicon carbide coatings. *Advanced Functional Materials*. DOI: 10.1002/adfm.201400693. Volume 24, Issue 36, 5737–5744. 2014.
47. Fan XJ, Ranouta AS, Dhiman HS. Effects of package level structure and material properties on solder joint reliability under impact loading. *IEEE Transactions on Components, Packaging and Manufacturing Technology*. 3(1), 52-60. 2013.
48. Fan XJ, Ranouta AS. Finite element modeling of system design and testing conditions for component solder ball reliability under impact. *IEEE Transactions on Components, Packaging and Manufacturing Technology*. 2(11), 1802-1810, 2012.
49. Placette MD, Fan XJ, Zhao JH, Edwards D. Dual stage modeling of moisture absorption and desorption in epoxy mold compounds. *Microelectronics Reliability* 52, 1401–1408. 2012.
50. Zhang Y, Liu Y, Liang L, Fan XJ. The effect of atomic density gradient in electromigration. *International Journal of Materials and Structural Integrity* 6(1), 36-53. 2012.
51. Huang H, Han Q, Feng N, Fan, XJ. Buckling of functionally graded cylindrical shells under combined loads. *Mechanics of Advanced Materials and Structures*, 18:337–346, 2011.
52. Dandu P, Fan XJ, Liu Y, Diao C. Finite element modeling on electromigration of solder joints in wafer level packages, *Microelectronics Reliability*, 50, 547–555, 2010.
53. Fan XJ, Varia B, Han Q. Design and optimization of thermo-mechanical reliability in wafer level packaging, *Microelectronics Reliability*, 50, 536–546, 2010.
54. Tee TY, Fan XJ, Lai YS. Advances in wafer level packaging (WLP), Guest Editorial, *Microelectronics Reliability* 50, 479-480, 2010.
55. Xie B, Fan XJ, Shi XQ, Ding H. Direct concentration approach of moisture diffusion and whole field vapor pressure modeling for reflow process: part I – theory and numerical implementation. *ASME Journal of Electronic Packaging* 131(3), 031010. 2009.
56. Xie B, Fan XJ, Shi XQ, Ding H. Direct concentration approach of moisture diffusion and whole field vapor pressure modeling for reflow process: part II – application to 3-D ultra-thin stacked-die chip scale packages. *ASME Journal of Electronic Packaging* 131(3), 031011. 2009.
57. Fan XJ, Lee SWR, Han Q. Experimental investigations and model study of moisture behaviors in polymeric materials. *Microelectronics Reliability* 49, 861–871. 2009.
58. Fan XJ, Zhang GQ, van Driel WD, Ernst LJ. Interfacial delamination mechanisms during soldering reflow with moisture preconditioning, *IEEE Transactions on Components and Packaging Technologies* 31(2), 252-259, 2008.

59. van Driel WD, van Gils MAJ, Fan XJ, Zhang GQ, Ernst LJ. Driving mechanisms of delamination related reliability problems in exposed pad packages. *IEEE Transactions on Components and Packaging Technologies* 31(2), 260-268, 2008.
60. Fan XJ, Chandra A. Foreword on cracking and delamination, *IEEE Transactions on Components and Packaging Technologies*, 31(2), 243-244, 2008.
61. Shi XQ, Zhang YL, Zhou W, Fan XJ. Effect of hygrothermal aging on interfacial reliability of silicon/underfill/FR-4 assembly. *IEEE Transactions on Components and Packaging Technologies* 31(1), 94-103, 2008.
62. van Gils MAJ, van Driel WD, Zhang GQ, Bressers HJL, van Silfhout RBR, Fan XJ, Janssen JHJ. Virtual qualification of moisture induced failures of advanced packages. *Microelectronics Reliability* 47(2-3), 273-279. 2007.
63. Huang Z, Tang J, Hu C, Wang M, Zhang M., Liu B, Fan XJ, Prack E. Moisture induced cohesive delamination in die-attach film in ultra thin stacked chip-scale package. *Intel Assembly Test Tech. Journal*. 2007.
64. Sahasrabudhe S, Raman A, Renavikar M, Fan XJ, Lucero A, Sane S. Mechanistic reliability model for thermo-mechanically driven BLM delamination. *Intel Assembly & Test Technology Journal*. 2006.
65. Fan XJ, Zhou J, Zhang GQ, Ernst LJ. A micromechanics based vapor pressure model in electronic packages. *ASME Journal of Electronic Packaging* 127 (3), 262-267. 2005.
66. Fan XJ, Zhang GQ. Overview: characterization and modeling of moisture behavior of electronic packaging, *Micromaterials and Nanomaterials* 3, 12-27. 2004.
67. Fan XJ, Zhou J, Zhang GQ. Multi-physics modeling in virtual prototyping of electronic packages - combined thermal, thermo-mechanical and vapor pressure modeling. *Microelectronics Reliability* 44, 1967-1976. 2004.
68. van Driel WD, Fan XJ, Zhang GQ. Foreword - special section on EuroSimE. *IEEE Transactions on Components and Packaging Technologies*, 27(4), 627-628. 2004.
69. van Driel WD, Wisse G, Chang AYL, Janssen JHJ, Zhang GQ, Ernst LJ, Fan XJ. Influence of material combinations on delamination failures in a cavity-down TBGA package. *IEEE Transactions on Components and Packaging Technologies* 27(4), 651- 658. 2004.
70. Yang DG, Jansen KMB, Wang LG, Ernst LJ, Zhang GQ, Bressers HJL, Fan XJ. Micromechanical modeling of stress evolution induced during cure in a particle-filled electronic packaging polymer. *IEEE Transactions on Components and Packaging Technologies* 27(4), 676-683. 2004.
71. Fan XJ, Wang HB, Lim TB. Investigation of the underfill delamination and cracking for flip chip modules under temperature cyclic loading. *IEEE Transactions on Components, Manufacturing and Packaging Technologies*, 24(1), 84-91. 2001.
72. Zhang HS, Xu JB, Fan XJ. In vitro culture and study on the mechanical properties of rat osteoblast. *Chinese Journal of Biomedical Engineering*, 18(4), p433. 1998.
73. Fan XJ, Suo J, Yang GT. Mechanics of DNA, *Advances in Mechanics* 28(2), 298-322. 1998.
74. Xu JB, Fan XJ, Zhang HS, Wu WZ, Yang GT. An application of the micropipette technique to the measurement of the mechanical properties of rat osteoblast. *Chinese Journal of Biophysics* 14,360-366. 1998.
75. Zhang N, Fan XJ. Investigation of stiffness of trabeculae bone by RVE approach. *Acta Mechanica Sinica* 69(2), 241-249. 1997.
76. Shu XF, Zhang N, Fan XJ. Homogenization model of trabeculae bone, *Chinese Journal of Biomechanics* 12(4), 212-218. 1997.
77. Wei DM, Fan XJ. Catastrophic analysis for crack growth stability in a three-point-bending specimen. *Acta Mechanica Solida Sinica* 9(3), 213-219. 1997.
78. Fan XJ. Homogenization theory and its applications in biomechanics. *Advances in Mechanics* 26(2), 187-197. 1996.
79. Zhang N, Fan XJ. Compact bone: numerical simulation of mechanical characteristics, *Journal of Biomechanics* 29, 1673-1674. 1996.
80. Fan XJ. Cell biomechanics, *Advances in Mechanics* 25(2), 197-208. 1995.

81. Fan XJ, Zhang SY. Void behavior due to internal pressure induced by temperature rise, *Journal of Material Science* 30, 3483-3486. 1995.
82. Fan XJ, Sato Y, Watanabe K. Elasto-plastic branched analysis for an interface crack based on crack energy density. Acta Mechanica Solida Sinica 8(2), 171-177. 1995.
83. Fan XJ, Watanabe K. Three strip yield model in mixed mode fracture. *International Journal of Fracture*, 72(2), 183-189. 1995.
84. Fan XJ, Sun JS, Qian, J. A combination of weight function method and line spring model: surface-cracked cylindrical shell subjected to stress gradients. *International Journal of Solids and Structures* 32(20), 3037-3046. 1995.
85. Fan XJ, Lei JP. Effect of the yielding scale at warm prestressing on the behavior of crack initiation. *Acta Metallurgica et Materialia* 43(4), 1447-1450. 1995.
86. Fan XJ, Watanabe K. Representation of plasticity at an interface crack by inclined strip yield superdislocation model. *Acta Mechanica Solida Sinica* 7(3), 265-273. 1994.
87. Wang HL, Fan XJ. Effect of the temperature near crack tip caused by hardening and damage of the heat-work mould materials. *Chinese Journal of Mechanical Engineering* 30(1), 75-81. 1994.
88. Fan XJ, Yan ZD. The theorem of term-by-term differentiation of Legendre series and its application. *Journal of Taiyuan University of Technology* 24(2), 43-48. 1993.
89. Fan XJ. Some recent advances in fracture mechanics. *Journal of Taiyuan University of Technology* 24, 152-159. 1993.
90. Fan XJ, Yu SW. Stress intensity factor for a surface crack in a plate with stress gradient. *Journal of Applied Mechanics* 9, 10-15. 1992.
91. Fan XJ, Yu SW. Temperature fields at the crack tip in a damaging medium, *Z. Angew. Math. Mech.* 72, 166-169. 1992.
92. Fan XJ, Yu SW. Near-tip temperature distribution for mode III stationary crack in power-hardening materials. *Acta Mechanica Solida Sinica* 5(3), 259-268. 1992.
93. Fan XJ. Asymptotic analysis of temperature field at mode III crack tip in an elasto-perfectly plastic material. *Journal of Taiyuan University of Technology* 23(4), 68-73. 1992.
94. Fan XJ, Yu SW. Toughening analysis for warm prestressing. *International Journal of Pressure Vessel and Piping* 48, 1-8. 1991.
95. Fan XJ, Yu SW. Thermal shock analysis for a surface-cracked plate. *Engineering Fracture Mechanics* 41(2), 223-228. 1991.
96. Fan XJ, Yu SW. Asymptotic solutions of the transient stresses in a surface cracked hollow cylinder subjected to thermal shock. *Journal of Thermal Stresses* 14(1), 19-33. 1991.
97. Fan XJ, Yu SW. Surface crack initiation analysis of a cylindrical vessel under thermal shock. *Journal of Computational Structural Mechanics and Applications* 7, 1-7. 1990.
98. Fan XJ, Yu SW, Hwang KC. The line spring model with arbitrary loads on crack surfaces and its applications in thermal shock analysis, *Acta Mechanica Sinica* 6(3), 248-255. 1990.
99. Fan XJ. Uniformity for the solutions of energy release rate. *Mechanics and Practice* 11(4), 61-62. 1989.

Book Chapters

100. Qian C, Fan JJ, Fan XJ and Zhang GQ. Advances in Reliability Testing and Standards Development for LED Packages and Systems. In *Solid State Lighting Reliability Part 2: Components to Systems*. 77-114. Springer, New York. 2017.
101. Lu GJ, van Driel WD, Fan XJ, Fan JJ, Zhang GQ. LED based Luminaire Color Shift Acceleration and Prediction. In *Solid State Lighting Reliability Part 2: Components to Systems*. 201-219. Springer, New York. 2017.
102. Fan JJ, Qian C, Fan XJ, Zhang GQ and Pecht M. Fault Diagnostics and Lifetime Prognostics for Phosphor-Converted White LED Packages. In *Solid State Lighting Reliability Part 2: Components to Systems*. 255-299. Springer, New York. 2017.

103. Huang JL, Golubović DS, Koh S, Yang DG, Li XP, Fan XJ and Zhang GQ. Degradation Mechanisms of Mid-power White-light LEDs. In *Solid State Lighting Reliability Part 2: Components to Systems*. 381-432. Springer, New York. 2017.
104. Sun B, Fan XJ, van Driel WD, Zhang GQ. Reliability Prediction of Integrated LED Lamps with Electrolytic Capacitor-less LED Drivers. In *Solid State Lighting Reliability Part 2: Components to Systems*. 455-486. Springer, New York. 2017.
105. Chen L, Jiang TF, and Fan XJ, Die and Package Level Thermal and Thermal/Moisture Stresses in 3-D Packaging: Modeling and Characterization. In *3D Microelectronic Packaging: From Fundamentals to Applications*, Li Yan, Goyal Deepak (eds), 293-332. Springer, 2017.
106. Fan XJ, Pei M, Bhatti PK. Thermal stresses in flip chip BGA packaging. in *Encyclopedia of Thermal Stresses*. R.B. Hetnarski (ed.), Encyclopedia of Thermal Stresses, DOI 10.1007/978-94-007-2739-7, 5344-5369. Springer Science+Business Media Dordrecht 2014.
107. Fan XJ. Thermal stresses in wafer level packaging. in *Encyclopedia of Thermal Stresses*. R.B. Hetnarski (ed.), Encyclopedia of Thermal Stresses, DOI 10.1007/978-94-007-2739-7, 5415-5432. Springer Science+Business Media Dordrecht 2014.
108. Fan XJ. Wafer level system packaging and integration for solid state lighting (SSL). In *Solid State Lighting Reliability: Components to System*. Springer, New York. 2012.
109. Fan XJ, Lee SWR. Fundamental characteristics of moisture transport, diffusion, and the moisture-induced damages in polymeric materials in electronic packaging. in *Moisture Sensitivity of Plastic Packages of IC Devices*, Fan XJ and Suhir E (eds), Chapter 1, 1-28, Springer, New York, 2010.
110. He Y, Fan XJ. Real-time characterization of moisture absorption and desorption. in *Moisture Sensitivity of Plastic Packages of IC Devices*, Fan XJ, Suhir E (eds), Chapter 3, 71-89, Springer, New York, 2010.
111. Fan XJ, Tee TY, Shi XQ, Xie B. Modeling of moisture diffusion and whole-field vapor pressure in plastic packages of IC devices. in *Moisture Sensitivity of Plastic Packages of IC Devices*, Fan XJ and Suhir E (eds), Chapter 4, 91-112, Springer, New York, 2010.
112. Shi XQ, Fan XJ, Zhang YL, Zhou W. Characterization of interfacial hydrothermal strength of sandwiched assembly using photomechanics measurement techniques, in *Moisture Sensitivity of Plastic Packages of IC Devices*, Fan XJ and Suhir E (eds), Chapter 6, 131-151, Springer, New York, 2010.
113. Zhou J, Tee TY, Fan XJ. Hygroscopic swelling of polymeric materials in electronic packaging: characterization and analysis, in *Moisture Sensitivity of Plastic Packages of IC Devices*, Fan XJ and Suhir E (eds), Chapter 7, 153-179, Springer, New York, 2010.
114. Suhir E, Fan XJ. Failure criterion for moisture-sensitive plastic packages of integrated circuit (IC) devices: application and extension of the theory of thin plates of large deflections, in *Moisture Sensitivity of Plastic Packages of IC Devices*, Fan XJ and Suhir E (eds), Chapter 10, 245-278, Springer, New York, 2010.
115. Fan XJ, Zhou J, Zhang GQ, Chandra A. Continuum theory in moisture-induced failures of encapsulated IC devices, in *Moisture Sensitivity of Plastic Packages of IC Devices*, Fan XJ and Suhir E (eds), Chapter 11, 279-299, Springer, New York, 2010.
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245. Fan XJ, Watanabe K. CED for inelastic interface crack, 3rd report, the dependencies of notch root radius. Proceedings of National Conference on Numerical methods in Mechanics (Japan), Sendai, Japan, 232-235. 1993.
246. Sato Y, Fan XJ, Watanabe K. CED for an interface crack and its evaluation. American Society of Mechanical Engineers, Pressure Vessels and Piping Division (Publication) PVP, v 304, Fatigue and Fracture Mechanics in Pressure Vessels and Piping, 129-136. 1993.
247. Sato Y, Fan XJ, Watanabe K. CED for inelastic interface crack, 1st report, fundamental relations. Proceedings of the 71st National Conference of Japanese Society for Mechanical Engineering, Hiroshima, Japan, 438-443. 1993.
248. Sato Y, Fan XJ, Watanabe K. CED for inelastic interface crack, 2nd report, a study based on elasto-plastic FEM. Proceedings of the 71st National Conference of Japanese Society for Mechanical Engineering, 438-443, Hiroshima, Japan. 1993.
249. Fan XJ. A modified Jonson-Hult damage model in crack analysis. Proceedings of the 6th National Conference on Fracture, 122-125, Hangzhou, China. 1992.
250. Fan XJ, Yu SW. Surface cracked cylindrical vessels subjected to thermal shock. Proc. of the International Conference on Structural Engineering and Computation, Beijing, China 168-172. 1990
251. Yan ZD, Fan XJ, Zhao YJ. Two methods doe solving the axisymmetric problem of open spherical shell with arbitrary developing angles. Proceedings of the International Conference on Structural Engineering and Computation , Peking Univ. Press, Beijing. 303-308. 1990.
252. Fan XJ, Yu SW. Toughening analysis for warm prestressing, 6th National Nuclear Reactor Structural Mechanics Conference, 211-215. 1990.
253. Fan XJ, Yu SW. Asymptotic solutions of thermal stresses for a cracked structure. 6th National Nuclear Reactor Structural Mechanics Conference, 263-268. 1989.
254. Fan XJ, Yu SW. A new-developed finite element code for thermal shock analysis in nuclear reactor's structures. Proceedings of the 5th National Conference on Structural Mechanics in Nuclear Reactor Technology, Chengdu, China. 23-33. 1989.

Patents

1. Fan XJ. METHOD FOR PROVIDING DOUBLE-SIDED COOLING OF LEADFRAME-BASED WIRE-BONDED ELECTRONIC PACKAGES AND DEVICE PRODUCED THEREBY
    1. US patent office, 10576615， 2003
    2. World patent office，WO2004IB52097， 2004
    3. Korea patent office，KR1020067007544, 2006

4. China patent office，CN200480030339， 2005
5. Japan patent office， JP2006534899, 2006

2. Fan XJ. INTEGRATED CIRCUIT PACKAGE INCLUDING SEALED GAPS AND PREVENTION OF VAPOR INDUCED FAILURES AND METHOD OF MANUFACTURING THE SAME
   1. US patent office，US6773964 (B2)，US2004061127 (A1),2004
   2. World patent office, WO2004030094 (A1)， 2004
   3. European patent office，EP1550160 (A0)， 2005
   4. China patent office，CN1685500 (A)， 2004
   5. Australia patent office，AU2003260878 (A1), 2003
3. Fan XJ, Lord J, Keith W. THERMAL-EFFICIENT POWER CONVERTER ENCLOSURE FOR SOLAR PANELS
   1. US patent office，US20060124167，2006
4. Fan XJ. JUNCTION TEMPERATURES MEASUREMENTS IN SEMICONDUCTOR CHIP PACKAGE TECHNOLOGY
   1. US patent office，US 6,853,944， 2006
5. Fan XJ, Xu P. LIGHT-EMITTING DIODE THERMAL MANAGEMENT SYSTEM
   1. US patent office，US 10562528， 2004
   2. World patent office，WO2005001943， 2005
   3. Korea patent office，10200570252， 2005
   4. European patent office，2004737085， 2004
   5. China patent office，200480018753.X， 2004
   6. Japan patent office，200651838， 2006

Invited Keynotes/Tutorials/Seminars

1. Modeling of Electromigration in Microelectronics. CPMT Benelux Chapter, January 21, 2017, Delft, the Netherlands. (IEEE Distinguished Lecturer Presentation, invited seminar).
2. Electronics Packaging Community Readiness for Heterogeneous Integration Challenges in 2020 and beyond, Panel Forum, International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Microsystems (EuroSimE), Dresden, Germany. 2-5 April 2017. (Invited Talk).
3. In-Situ Characterization of Moisture Absorption and Hygroscopic Swelling of Silicone/Phosphor Composite Film and Epoxy Mold Compound in LED Packaging. 2017 18th International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Microsystems (EuroSimE), Dresden, Germany. 2-5 April 2017. (Session keynote).
4. LED Packaging, System and, and Reliability Considerations. Professional Development Course at Electronic Components and Technology Conference (ECTC). Orlando, Florida, May 30, 2017. (Tutorial).
5. Investigation of dimensional and heat source effects in Lock-In thermography applications in semiconductor packages. Fraunhofer Institute for Microstructure of Materials and Systems IMWS, Halle, Germany, April 6, 2017 (Invited Talk).
6. Tailoring material properties for 3D microfabrication: In-situ experimentation and multi-scale modelling. 17th International Conference on Electronic Packaging Technology (ICEPT), 2016. Wuhan, China, 16-19 Aug. 2016. (Plenary keynote).
7. LED Packaging, System and, and Reliability Considerations. Professional Development Course at Electronic Components and Technology Conference (ECTC). Las Vegas, Nevada, May 31, 2016. (Tutorial).
8. Research beyond One Engineering Discipline. Taiyuan University of Technology, Taiyuan, China. July 11, 2016. (Invited Seminar).

9. Recent Advances in Moisture Related Reliability in IC Packaging, Inauguration of CPMT Benelux Chapter, January 21, 2016, Delft, the Netherlands. (IEEE Distinguished Lecturer Presentation, invited keynote)
10. Overview of Mechanism-based LED Component and System Reliability Study. 2016 17th International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Microsystems (EuroSimE), Montpellier, France, 18-20 April 2016. (Plenary keynote).
11. 3D IC Packaging. Central South University, Changsha, China, December 24, 2016. (Invited Seminar).
12. Recent Advances in Moisture Related Reliability in IC Packaging, IEEE CPMT Oregon Chapter Workshop, December 3, 2015, Portland, Oregon. (IEEE Distinguished Lecturer Presentation, invited tutorial)
13. New Insights into Nanoscale Materials for Microfabrication. Microelectronics Research Center, University of Austin, Texas. November 16, 2015. (invited talk)
14. Research beyond One Engineering Discipline – My Personal Research Experience, Faculty Talk, Lamar University, August 26, 2015 (invited talk)
15. Accelerated Test Method Development in LED Systems, International. Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems, April 8, 2015 (session keynote)
16. Advances in IC Packaging: 3D, WLP, Stretchable Electronics and Electromigration. January 2015, Tsinghua University, 2015. (IEEE Distinguished Lecture, invited talk)
17. Accelerated Test Method Development in LED Systems, International. Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems, April 8, 2015 (session keynote)
18. Does Current Crowding Induce Vacancy Concentration Singularity in Electromigration? 13th International Workshop on Stress-Induced Phenomena in Microelectronics. The University of Texas at Austin. October 15-17. 2014 (invited talk).
19. Does Current Crowding Induce Vacancy Concentration Singularity in Electromigration? International Conference on Electronic Packaging Technology (ICEPT), Chengdu, China, August 14, 2014 (session keynote).
20. Reliability Challenges in Compound Semiconductor Electronics, Wearable Electronics, and Flexible and Bio- Electronics. International Conference on Electronic Packaging Technology (ICEPT), Chengdu, China, August 13, 2014 (plenary keynote).
21. Some Developments in LED Reliability Research. International. Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2014). Gent, Belgium. April 8, 2014 (invited session keynote).
22. Does Current Crowding Induce Electromigration Singularity? Seminar on Seminar on Micro/Nanoelectronics System Integration and Reliability, April 10, 2014. DIMES Colloquium DI01.180, Delft University of Technology. 2014 (invited talk)
23. Development of accelerated testing method for luminous decay of LED products. LED Forum, Dalian High Tech Development Zone. Dalian, 2013.
24. Wafer Level Packaging (WLP): Fan-in, Fan-out and 3D Integration. International Conference on Electronic Packaging Technology (ICEPT). Professional Development Course. Dalian, 2013.
25. Development of accelerated testing method for luminous decay of LED products. Center for Advanced Microsystems Packaging at Foshan, August 2013.
26. Development of accelerated testing method for luminous decay of LED products. China Solid State Lighting Alliance, August 2013.
27. Development of accelerated testing method for luminous decay of LED products. Lab for Microelectronics Systems, Huazhong University of Science and Technology, August 2013.
28. Solid state lighting system reliability: state of the art. International. Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2013). Wroclaw, Poland. April 15-17, 2013 (plenary keynote).

29. Multy-physics modeling in IC packaging and microsystems. Electronic Components and Technology Conference (ECTC), Las Vegas, USA, May 28, 2013. (professional development course).
30. Wafer level packaging: fan-in, fan-out and 3-D integration. International Conference on Electronic Packaging Technology and High Density Packaging (ICEPT-HDP), Guilin, China, August 14, 2012 (plenary keynote).
31. Overview of solid state lighting reliability. International Summer School of Solid State Lighting Technologies, Changzhou, China, August 9, 2012 (tutorial).
32. Multy-physics modeling in IC packaging and microsystems. Electronic Components and Technology Conference (ECTC), San Diego, USA, May 29, 2012. (professional development course).
33. Electromigration in solder joints: failure mechanisms and modeling study. Materials Science and Engineering. University of Texas at Austin, Austin, Texas. April 11, 2012 (invited seminar).
34. Wafer level system packaging and integration for solid state lighting (SSL). International. Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2012). Lisbon, Portugal, April 16-18, 2012 (session keynote).
35. Update of wafer level packaging. Advanced Packaging Technologies Consortium (APTC) Workshop, Shanghai, China, August 8, 2011 (invited seminar).
36. Reliability study in micro-/nano- electronics systems. Guilin University of Electronics Technology, Guilin, June 28, 2011 (invited talk).
37. Reliability issues in microelectronics packaging. Guilin University of Electronics Technology, Guilin, June 29, 2011 (invited talk).
38. Multiphysics modeling of microelectronics packaging and microsystems. Guilin University of Electronics Technology, Guilin, June 29, 2011 (invited talk).
39. Wafer level integration of solid state lighting system. International Seminar of Solid State Lighting Packaging and Integration. Guilin University of Electronics Technology, Beijing, China. August 16, 2011 (keynote).
40. Multiphysics modeling of microelectronics packaging and microsystems. International Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2011). , Linz, Austria, April 17, 2011 (short course).
41. Moisture diffusion and integrated stress analysis in encapsulated microelectronics devices. International Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2011). Linz, Austria, April 19, 2011 (session keynote).
42. Moisture related reliability in electronic packaging. 61st Electronic Components and Technology Conference (61st ECTC), Orlando, Florida. May 31, 2011 (professional development course).
43. Reliability study in micro-/nano- electronics systems. China Petroleum University, Qingdao, Shandong, China, May 17, 2011 (invited talk).
44. Reliability study in micro-/nano- electronics systems. Shandong University, Weihai, China, May 17, 2011 (invited talk).
45. Wafer level packaging (WLP): fan-in, fan-out and three-dimensional integration. 11th. Int. Conf. on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2010). Bordeaux, France, April 25-18, 2010 (plenary keynote).
46. Advances in moisture related reliability in electronic packaging, National Semiconductor Corp., Santa Clara, CA, July 11, 2010 (invited tutorial).
47. Wafer level packaging, past, present and future. Huatian Advanced Packaging Forum, Tianshui, Gansu, China August 14, 2010 (keynote presentation).
48. Moisture related reliability in electronic packaging. Electronic Components and Technology Conference (60th ECTC), Las Vegas, NV, June, 2010 (professional development course).
49. Moisture related reliability in electronic packaging. Cisco Systems, Inc., Santa Clara, CA, September 2010 (invited tutorial).
50. Thin film cohesive rupture due to moisture at soldering reflow. Symposium on Fracture, Damage, and Micro-/Nano- Mechanics, Beijing, China, August 2009 (invited talk).

51. Moisture related reliability in electronic packaging. 2009 IC Packaging Reliability Forum, Hsinchu, Taiwan, July 2009 (invited workshop).
52. IC package reliability considerations: impact of design, material and process. ASE, Taiwan, July, 2009 (invited presentation).
53. Design, reliability and electromigration in chip scale wafer level packaging. Electronic Components and Technology Conference (59th ECTC), San Diego, CA, June 2009 (professional development course).
54. Design, reliability and electromigration in chip scale wafer level packaging. International Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE), Delft, Netherlands, April 2009 (short course).
55. Overview of thermal performance of various power-device packages. International Conference on Thermal and Mechanical Simulation and Experiments in Microelectronics and Microsystems, (EuroSimE), Freiburg, Germany, 2008 (plenary keynote).
56. Moisture related reliability in electronic packging. International Conference on Thermal and Mechanical Simulation and Experiments in Microelectronics and Microsystems, (EuroSimE), Freiburg, Germany, 2008 (short course).
57. Mechanics of moisture for polymers: fundamental concepts and model study. International Conference on Thermal and Mechanical Simulation and Experiments in Microelectronics and Microsystems (EuroSimE), Freiburg, Germany, 2008 (session keynote).
58. Moisture related reliability in electronic packging. Electronic Component Technology Conference (ECTC), Orlando, Florida, 2008 (professional development course).
59. Interfacial delamination and cohesive rupture of thin films in microelectronics. South China University of Technology (SCUT), Guangzhou, China, July 2008 (invited seminar).
60. Moisture related reliability in electronic packging. IEEE CPMT Hong Kong Chapter, Hong Kong, July 2008 (invited workshop).
61. Micro-/nano- electronics and multi-scale analysis. Shanxi University, Taiyuan, China, July 2008 (invited talk).
62. Design consideration and reliability challenges in wafer-level packaging. International Conference on Electronic Packaging Technology and High Density Packaging (ICEPT-HDP). Shanghai, China, August 2008 (session keynote presentation).
63. Recent advances in wafer-level packaging. Nantong Fujitsu Inc., Nantong, China, August 2008 (invited presentation).
64. Lead-free solder joint reliability. Huawei Electronics Inc., Shenzhen, China, August 2008 (invited talk).
65. Moisture sensitivity of plastic packages of IC devices. IEEE 10th Electronics Packaging Technology Conference (EPTC), Singapore, December, 2008 (short-course).
66. Design and reliability in wafer-level packaging. IEEE 10th Electronics Packaging Technology Conference (EPTC), Singapore, December, 2008 (invited talk).
67. Moisture related reliability in electronic packging. ASM Inc, Singapore, December 2008 (invited tutorial).
68. Interfacial delamination and cohesive rupture of thin films in microelectronics. Tianjin University, China, December 2008 (invited seminar).
69. Interface delamication and cohesive failures of thin films in microelectronics. Delft University of Technology, Delft, the Netherlands, 2007 (distinguished seminar presentation)
70. Reliability and thermal modeling in electronic packaging. MAXIM Inc, Dallas, Texas, 2007 (invited talk).
71. Interface/material failures due to moisture at elevated temperature in microelectronic packaging, Iowa State University, Ames, IA, December, 2007 (invited distinguished lecture).
72. Moisture related reliability in electronic packaging, Electronic Component Technology Conference (ECTC), June 2007 (professional development course).
73. Reliability mechanics issues in electronic packaging. International Conference on Electronic Packaging Technology (ICEPT), August 2007 (short course).

74. Delamination/cracking mechanism study for ultra-thin stacked-die chip scale packages. Intel Conference on Manufacturing Excellence (IMEC), San Diego, CA, 2006 (invited talk).
75. Moisture related reliability in electronic packging. Electronic Component Technology Conference (ECTC), June 2006 (professional development course).
76. Advances in reliability mechanics in microelectronics and microsystems. International Conference on Electronic Packaging Technology (ICEPT), August 2006 (invited short course).
77. Moisture related reliability in electronic packging. Electronic Component Technology Conference (ECTC), June 2005 (professional development course).

Conference Presentations/Posters

78. Modeling of Electromigration of Interconnect in Nanomicroelectronics. Chinese Congress of Mechanics, Beijing, China, August 13-16, 2017.
79. A PoF and Statistics Combined Reliability Prediction for LED Arrays in Lamps. 2017 18th International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Microsystems (EuroSimE), Dresden, Germany. 2-5 April 2017.
80. A Unified and Versatile Model Study for Moisture Diffusion. 2017 IEEE 67th Electronic Components and Technology Conference (ECTC), Orlando, Florida. 30 May-2 June 2017.
81. Investigation of geometry, frequency and material's effects in lock-in thermography applications in semiconductor packages, 2016 IEEE 66th Electronic Components and Technology Conference (ECTC), Las Vegas, NV, 31 May-3 June 2016.
82. Mechanics and Material Challenges in IC Packaging and Microsystems, ASME 2015 International Mechanical Engineering Congress & Exposition, November 13 – 19, 2015, Houston, Texas.
83. Modeling of Carbon Nanotubes Arrays with Analytical and Numerical Methods. ASME 2015 International Mechanical Engineering Congress & Exposition, November 13 – 19, 2015, Houston, Texas.
84. A Novel Approach based multiphase, multiscale, and multiphysics modeling for studying moisture effects in porous materials. ASME 2015 International Mechanical Engineering Congress & Exposition, November 13 – 19, 2015, Houston, Texas.
85. Application of a vapor pressure based model for predicting moisture behavior in stacked die packages. ASME 2015 International Mechanical Engineering Congress & Exposition, November 13 – 19, 2015, Houston, Texas.
86. In-situ monitoring and anomaly detection for LED packages using a Mahalanobis distance approach, 2015 First International Conference on Reliability Systems Engineering (ICRSE), 21-23 Oct. 2015, Beijing, China. 2015.
87. Prediction of a statistical distribution of luminous flux for LED modules with an analytical model. 2015 First International Conference on Reliability Systems Engineering (ICRSE), 21-23 Oct. 2015, Beijing, China. 2015.
88. A POF based breakdown method for LED lighting color shift reliability, 2015 12th China International Forum on Solid State Lighting (SSLCHINA), Guangzhou, China, 2-4 Nov. 2015.
89. Investigation of photoluminescence and thermal effect of phosphor films used in phosphor-converted white LEDs, 2015 12th China International Forum on Solid State Lighting (SSLCHINA), Guangzhou, China, 2-4 Nov. 2015.
90. Junction temperature measurement to optimize thermal design of LED arrays. 2015 12th China International Forum on Solid State Lighting (SSLCHINA), Guangzhou, China, 2-4 Nov. 2015.
91. LED's luminous flux lifetime prediction using a hybrid numerical approach, Proc. 12th. Int. Conf. on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems. 2015
92. Achieving warpage-free packaging: A capped-die flip chip package design. Proc. of Electronic Components and Technology Conference (ECTC), San Diego, CA. May 26 –29, 2015.

93. Vapor pressure prediction for stacked-chip packages in reflow by convection-diffusion model. Proc. 12th. Int. Conf. on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems. 2015.
94. A degradation model of aluminum electrolytic capacitors for LED drivers. Proc. 12th. Int. Conf. on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems. 2015.
95. Achieving warpage-free packaging: A capped-die flip chip package design. Electronic Components and Technology Conference (ECTC), San Diego, CA. May 29, 2015.
96. Vapor pressure prediction for stacked-chip packages in reflow by convection-diffusion model, International Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2015). Budapest, Hungary, April 16, 2015.
97. Does Current Crowding Induce Vacancy Concentration Singularity in Electromigration? The 17th U. S. National Congress on Theoretical and Applied Mechanics June 15-20, 2014 at Michigan State University, East Lansing, Michigan, 2014.
98. Does Current Crowding Induce Vacancy Concentration Singularity in Electromigration? Electronic Components and Technology Conference (ECTC), Lake BuenaVista, Florida. May 27 –30, 2014.
99. Effect of temperature gradient on moisture diffusion in high power devices and the applications in LED packages. Electronic Components and Technology Conference (ECTC), Las Vegas, Nevada. May 28 -31. 2013.
100. Finite element modeling of anomalous moisture diffusion with dual stage model. Electronic Components and Technology Conference (ECTC), San Diego, May 29- June 1, 2012.
101. In-situ moisture desorption characterization of epoxy mold compound. International Conference on Thermal, Mechanical and Multiphysics Simulation and Experiments in Micro-Electronics and Micro-Systems (EuroSimE 2012). Lisbon, Portugal. April 16-18, 2012.
102. Experimental and model development of moisture sensitive packages at reflow process. NYCAIST Back End Processes and Packaging Review Meeting, Albany, New York, October 25, 2011.
103. Reliability enhancement of wafer level packages with nano-column-like hollow solder ball structures. 61st Electronic Components and Technology Conference (61st ECTC), Orlando, Florida. June 2, 2011.
104. Some remarks on finite element modeling of electromigration in solder joints. 60th Electronic Components and Technology Conference (60th ECTC), Las Vegas, NV, USA. June, 2010.
105. JEDEC board drop test simulation for wafer level packages (WLPs). Electronic Components and Technology Conference (59th ECTC), San Diego, CA, June 2009.
106. Package structural integrity analysis considering moisture. Electronic Components and Technology Conference (58th ECTC), Orlando, Florida, 2008.
107. Sensitivity investigation of substrate thickness and reflow profile on wafer level film failures in 3D chip scale packages by finite element modeling. Electronic Components and Technology Conference (57th ECTC), June 2007.
108. Effect of finite element modeling techniques on solder joint fatigue life prediction of flip-chip BGA packages. Electronic Components and Technology Conference (ECTC), June 2006.
109. Field condition reliability assessment for SnPb and SnAgCu solder joints in power cycling including mini cycles. Electronic Components and Technology Conference (ECTC), June 2006.
110. Reliability analysis of SnPb and SnAgCu solder joints in FC-BGA packages with thermal enabling preload. Electronic Components and Technology Conference (ECTC), June, 2006.
111. Delamination/cracking mechanism study for ultra-thin stacked-die chip scale packages. Intel Conference on Manufacturing Excellence (IMEC), San Diego, CA, 2006.
112. Effects of dwell time and ramp rate on lead-free solder joints in FCBGA packages, Proc. of Electronic Components and Technology Conference (ECTC), 901-906.

Reports

1. U.S. Department of Energy (DOE) Report, Hammer Testing Findings for Solid-State Lighting Luminaires (http://www1.eere.energy.gov/buildings/ssl/news_detail.html?news_id=21168). 2013
2. U.S. Department of Energy (DOE), LED Luminaire Lifetime: Recommendations for Testing and Reporting, Third Edition ((http://energy.gov/eere/ssl/led-lighting-facts). 2014.

Major Professional Offices

- Member, Board of Governers, IEEE Electronic Packaging Society, 2018-2020
- Co-Chair, Modeling and Simulation, Heterogeneous Integration Roadmap (HIR), 2017
- NSF ENG/CMMI Proposal Review Panel, 2016
- NASA EPSCoR Reviewer, 2016
- Associate Editor, IEEE Transactions of Components, Packaging and Manufacturing Technology. 2009 ~
- Book Series Editor, ReliabilityBrief, Springer, 2012 ~
- Member, LED Systems Reliability Consortium, Department of Energy (DOE). 2011 ~
- Member, JEDEC Drop Test Standard Modification Working Group. 2011 ~ 2016.
- Editor, Special Issue on 2010 ECTC Best Session Papers, IEEE Transactions of Components and Packaging Technologies. 2010
- Guest Editor, IEEE Transactions of Components and Packaging Technologies. 2007 -2009.
- IEEE Distinguished Lecturer. 2008 ~
- Guest Editor, Special Issue on Wafer Level Packaging, Microelectronics Reliability. 2010.
- Guest Editor, Special Issue on Cracking and Delamination, IEEE Transactions of Components and Packaging Technologies. 2006.
- Senior Member, IEEE. 2006 ~
- Member, IEEE. 2001 -2005.
- Reviewer: Georgia National Science Foundation (GNSF). 2008~
- Reviewer: Louisiana Board of Regents' Research Competitiveness Program. 2007~
- Reviewer: Semiconductor Research Cooperation (SRC). 2004 -2007.
- Reviewer: Intel Research Council – University Program. 2004 – 2007.
- Advisory Member, Tsinghua University Alumni Association of Arizona (TAAA). 2004 -2007.
- Committee Member, Biomechanics WP, Chinese Society of Theoretical and Applied Mechanics. 1995 ~ 1998.
- Standing Committee Member, Young Scientists WG, Chinese Society of Theoretical and Applied Mechanics. 1995 ~ 1998.
- National Natural Science Foundation (NSF) of China: Panel Reviewer, Division of Applied Mechanics 1994-1997.
- Program Review Committee Member, Chinese Society of Biomechanical Engineering. 1995-1998.
- Standing Committee Member, Association of Chinese Young Scientists. 1992 -1997.
- Standing Committee Member, All-China Youth Federation. 1992 -1997.
- Journal Reviewer: IEEE Transactions on Components and Packaging Technologies; IEEE Transactions on Advanced Packaging; ASME Journal of Electronic Packaging; Microelectronics Reliability; Journal of Computational Material Sciences; Journal of Chemical Physics; Journal of Microsystems; IEEE Transactions on Device and Materials Reliability; Intermetallics; Journal of Mechanics and MEMS; Materials Chemistry and Physics; Journal of Solid Thin Films; Journal of Applied Physics; Lab on a Chip; IEEE Design & Test of Computers; Microscopy Research and Technique; International Journal of Fracture; Engineering Fracture Mechanics; International Journal of Solid and Structures; Journal of Material Science; Journal of Biomechanics; Advances in Mechanics; Acta Mechanica Sinica; Acta Mechanica Solida Sinica, Materials, IEEE Transactions on Industrial Electronics, Reliability Engineering System Safety, Journal of Rare Earths, Journal of Materials Research, Journal of Alloys and Compounds, Cellulose, IEEE Transactions on Power

Electronics. Materials Letters, International Journal of Heat and Mass Transfer, Progress in Organic Coatings

Major Conference Activities

- Steering Committee, EPS Representative, Electronic Components and Technology Conference (ECTC), 2018 – 2021.
- Panel Member, Electronics Packaging Community Readiness for Heterogeneous Integration Challenges in 2020 and beyond, International Conference on Thermal, Mechanical and Multi-Physics Simulation and Experiments in Microelectronics and Microsystems (EuroSimE), Dresden, Germany. 2-5 April 2017.
- Chair, Heterogeneous Integration Roadmap (HIR) Forum, International Conference on Electronic Packaging Technology, Wuhan, China, 2016.
- Conference Co-Chair, International Conference on Electronic Packaging Technology (ICEPT). 2015
- Committee Chair, Thermal Mechanical Modeling and Characterization, Electronic Packaging and Technology Conference (EPTC). 2015.
- Advisory Committee Member, International Electronics Manufacturing Technology (IEMT), 2014
- Conference Session Chair, International Conference on Fracture (ICF13). 2013.
- Program Committee Member, Electronic System Technologies Conference (ESTC). 2013.
- Technical Committee Member, International Reliability Physics Symposium (IRPS). 2013.
- Session Organizer, Mechanics in Microelectronics and Energy Systems, ASME International Mechanical Engineering Congress & Exposition. 2012.
- Session Chair, Thermal Management and Reliability. China International Forum on Solid State Lighting. 2012.
- Chair, ITRS Packaging & Assembly Roadmap Workshop at International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP). 2012.
- Plenary Session Chair, International Conference on Thermal and Mechanical Simulation and Experiments in Microelectronics and Microsystems (EuroSimE). 2012.
- Technical Committee Member, 18th European Microelectronics and Packaging Conference (EMPC). 2011.
- Advisory Committee Member, International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP). 2011~
- Program Chair, International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP). 2010.
- International Advisory Board, International Electronics Manufacturing Technology Conference (IEMT). 2010~
- Plenary Session Chairs, International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP). 2010 ~
- Short Course Chairs, International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP). 2008-2009.
- Special Program Chairs, International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP). 2008 ~2009.
- Technical Co-Chairs, International Conference on Electronic Packaging Technology & High Density Packaging (ICEPT-HDP). 2006-2009.
- Technical Committee Member, Electronic Packaging and Technology Conference (EPTC). 2006~
- Session Chair, Electronic Packaging and Technology Conference (EPTC). 2008.
- Program Committee Member, Electronics System Integration Technology Conference (ESTC). 2009~
- Technical Committee Member, European Conference on Reliability of Electron Devices (ESREF). 2009~
- Program Committee Member, International Congress on Reliability in Microelectronics and Nanoelectronics. 2006.

- Program Committee Member, Modeling and Simulation, IEEE Electronic Components and Technology Conference (ECTC). 2005 ~
- Session Chairs, IEEE Electronic Components and Technology Conference (ECTC). 2005 ~
- Session Chairs, International Conference on Thermal and Mechanical Simulation and Experiments in Microelectronics and Microsystems (EuroSimE). 2007 ~
- Technical Committee Member, International Conference on Thermal and Mechanical Simulation and Experiments in Microelectronics and Microsystems (EuroSimE). 2000 ~
- Session Chairs, International Conference on Thermal and Mechanical Simulation and Experiments in Microelectronics and Microsystems (EuroSimE). 2002 -2003.
- Assistant Program Chair, the Fourth China-Japan-USA-Singapore Conference on Biomechanics, Taiyuan, China. 1995.