

Publications of Bernhard Wunderle until April 2020

	Jan-Apr 2020
[278]	E Liu*, F. Conti, S. K. Bhogaraju, R. Signorini, D. Pedron, B. Wunderle, and G. Elger. <i>Analysis of thermomechanical stress in GaN LEDs soldered on Cu substrate by Finite Element Method and RAMAN spectroscopy</i> . Physica Status Solidi, Rapid Research Letter, (submitted)
[277]	F. Wagner, G. Reber, M. Rittner, M. Guyenot, M. Nitzsche, and B. Wunderle. <i>Power Cycling of SiC MOSFET Single-Chip Modules with Additional Measurement Cycles for Life End Determination</i> . 11 th CIPS Conference, Berlin, 2020, accepted
	2019
[276]	A. Otto, S. Rzepka, and B. Wunderle. <i>Investigation of active power cycling combined with passive thermal cycles on discrete power electronic devices</i> . Journal of Electronic Packaging, Vol. 141, 2019
[275]	M. Shaygi, B. Wunderle, J. Arnold, N. Pflügler, and R. Pufall. <i>Button Shear Fatigue Test: Fracture-Mechanical Interface Characterisation under Periodic Subcritical Mechanical Loading</i> . Proc. 25 th Thermionic Conf., Lecco, Italy, Sept 25-27, 2019.
[274]	D.R. Wargulski, D. May, F. Löffler, T. Nowak, J. Petrick, C. Grosse, B. Wunderle, E. Boschman, and M. Abo Ras. <i>An In-line Failure Analysis System Based on IR Thermography Ready for Production Line Integration</i> . Proc. 25 th Thermionic Conf., Lecco, Italy, Sept 25-27, 2019.
[273]	C. Wagner, P. Meszmer, T. Blaudeck, S. Böttger, S. Hermann, J. Schuster, B. Wunderle, and S.E. Schulz. <i>Carbon nanotubes for mechanical sensor applications</i> . Physica Status Solidi A: Applications and Materials Science. doi:10.1002/pssa.201900584
[272]	A. Kumar, M. Schulz, J. Keller, V. Bader, M. Wöhrmann, J. Bauer, D. May, M. Abo Ras, and B. Wunderle. <i>Latest advancements towards delamination detection in a FCOB assembly using Thermal Pixel (Thixel) array</i> . Proc. 25 th Thermionic Conf., Lecco, Italy, Sept 25-27, 2019
[271]	E. Sheremet, P. Meszmer, T. Blaudeck, S. Hartmann, C. Wagner, B. Ma, S. Hermann, B. Wunderle, S.E. Schulz, M. Hietschold, R.D. Rodriguez, and D.R.T. Zahn. <i>Advanced Characterization Methods for Electrical and Sensoric Components and Devices at the Micro- and Nanoscales</i> . Physica Status Solidi A: Applications and Materials Science. doi:10.1002/pssa.201900106
[270]	P. Meszmer, S. Hahn, K. Hiller, and B. Wunderle. <i>Highly miniaturized MEMS-based test platforms for thermo-mechanical and reliability characterization of nano-functional elements – Technology and functional test results</i> . Phys. Status Solidi A: Applications and Materials Science, 1800936, 2019.
[269]	A. Shehzad, J. Derakhshandeh, B. Wunderle, L. Hou, S. Suhard, K. J. Rebibis, A. Miller, G. Beyer and E. Beyne. <i>New approach to apply 1,2,3-benzotriazole as a capping layer on UBMs for 3D TCB stacking and investigation of oxidation protection and solder wetting</i> . Proc. 22 EMPC Conf., Pisa, Italy, Sep. 16-19, 2019.
[268]	M. Schulz, R. Mroßko, B. Wunderle, M. Abo Ras. <i>Advanced Mixed-Mode Bending Test: Influence of the Surface Topography on the Fracture Behaviour of an EMC to Copper Lead Frame Bi-Material Interface</i> . Proc. 20th EuroSimE Conf., Hannover, Germany, March 24-27, 2019.
[267]	F. Wagner, Y. Maniar, M. Rittner, S. Kaessner, M. Guyenot, L. Lang, and B. Wunderle. <i>Simulative Comparison of Polymer and Ceramic Encapsulations on SiCMOSFET Power Modules under Thermomechanical Load</i> . Proc. 20th EuroSimE Conf., Hannover, Germany, March 24-27, 2019.
[265]	U. Zschenderlein, M. Klingler, J. Arnold, M. Baum, M. Weissbach, and B. Wunderle. <i>Micro Bending Test on Double Cantilever Beams: A specimen-centred approach to accurate determination of the visco-plastic properties of Sintered Silver for Power Electronics applications</i> . Proc. 20th EuroSimE Conf., Hannover, Germany, March 24-27, 2019.
[264]	B. Wunderle, D. May, J. Heilmann, J. Arnold, J. Hirscheider, J. Bauer, and M. Abo Ras. <i>Accelerated Pump Out Testing for Thermal Greases</i> . Proc. 20th EuroSimE Conf., Hannover, Germany, March 24-27, 2019.

[263]	N. Pflügler, G.M. Reuther, M. Goroll, R. Pufall, and B. Wunderle. <i>Plastic deformation and failure modes of moulding compounds during indentation loading and their importance for the quantitative characterisation of adhesion</i> . Proc. 20th EuroSimE Conf., Hannover, Germany, March 24-27, 2019.
[262]	R. Pufall, D. May, B. Wunderle, G.M. Reuther, N. Pflügler, D. Udiljak. <i>Prediction of robustness of packages by cohesive zone finite element simulation and verification by non-destructive tests</i> . Proc. 20th EuroSimE Conf., Hannover, Germany, March 24-27, 2019.
[261]	R.D. Rodriguez, Z. Khan, B. Ma, A. Mukherjee, J. Kalbacova, H. Shah, P. Meszmer, J. Heilmann, E. Garratt, A.R. High Walker, B. Wunderle, E. Sheremet, M. Hietschold, D.R.T. Zahn. <i>Defects in graphite: A combined Kelvin probe and Raman microscopy investigation</i> . Physica Status Solidi A: Applications and Materials Science. Accepted.
[260]	N. Pflügler, G.M. Reuther, M. Goroll, D. Udiljak, R. Pufall, and B. Wunderle. <i>Experimental determination of critical adhesion energies with the Advanced Button Shear Test</i> . Microelectronics Reliability, Volume 99, pp 177-185, 2019.
[259]	N. Pflügler, R. Pufall, M. Goroll, and B. Wunderle. Time-dependent behaviour of bonded silicon dies under subcritical, constant shear loading. Proc. 22 EMPC Conf., Pisa, Italy, Sep. 16-19, 2019.
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[257]	C. Grosse, M. Abo Ras, K. Elabshihy, D. May, Y. Chowdhury, M. Bauer, A. Varpula, K. Grigoras, M. Prunnila, and B. Wunderle. <i>A novel sensor platform for thermal property measurements of thermosetting resins using the three-omega method</i> . Proc. Thermosetting Resins 2018, Berlin, Germany, Sept. 25 – 27, 2018.
[256]	D.R. Wargulski, F. Löffler, D. May, J. Heilmann, B. Wunderle, A. Ziaei, and M. Abo Ras. <i>Comparative Die-Attach Failure Analysis by Thermoreflectance, Infrared Thermography and Scanning Acoustic Microscopy</i> . Proc. 24 th Thermionic Conf., Stockholm, Sweden, Sept. 26-28, 2018.
[255]	A. Otto, S. Rzepka, and B. Wunderle. <i>Investigation of active power cycling combined with passive thermal cycles on discrete power electronic devices for automotive applications</i> . Proc. IPACK Conf, San Francisco, USA, Aug 27-30, 2018. (best paper)
[254]	B. Völker, D. May, C. Grosse, M. Abo Ras, B. Wunderle, and M. Krikunova. <i>Precision Measurement of Thermal Diffusivity for Thin Layers by a Customised Laser Pulse Method</i> . Proc. 24 th Thermionic Conf., Stockholm, Sweden, Sept. 26-28, 2018.
[253]	A. Kumar, U. Zschenderlein, M. Baum, J. Zürcher, T. Brunschweiler, D.N. Wright, and B. Wunderle. <i>Thermo-mechanical reliability of sintered all-Cu electrical fine pitch interconnects under isothermal fatigue testing benchmarked against soldered and TLP-bonded SnAg3.5 joints</i> . Proc. 24 th Thermionic Conf., Stockholm, Sweden, Sept. 26-28, 2018
[252]	B. Wunderle, M. Springborn, D. May, C.-A. Manier, M. Abo Ras, H. Oppermann, and R. Mitova. <i>Transient Thermal Storage of excess heat using Eutectic BiSn as Phase Change Material for the thermal management of an electronic power module: design, technology, performance and reliability within a system approach</i> . Proc. 24 th Thermionic Conf., Stockholm, Sweden, Sept. 26-28, 2018
[251]	E. Bektas, K. Broermann, G. Pecanac, S. Rzepka, C. Silber, and B. Wunderle. <i>Fatigue crack growth analysis of interface between lead frame and molding compound</i> . Proc. 7 th ESTC Conf. Dresden, Germany, Sept 18-21, 2018.
[250]	V. Osipova and B. Wunderle. <i>Accelerated Vibrational Fatigue Testing of Thin Aluminum and Copper Films at Different Temperatures</i> . Proc. 7 th ESTC Conf. Dresden, Germany, Sept 18-21, 2018.
[249]	P. Panchal, T. v. Essen, M. Abo Ras, C. Grosse, D. May, and B. Wunderle. <i>Accurate, versatile and compact transient measurement system for fast thermal package characterization and health monitoring</i> . Proc. 7 th ESTC Conf. Dresden, Germany, Sept 18-21, 2018.

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[247]	M. Schulz, J. Keller, C. Vernier, M. Dressler, and B. Wunderle. <i>Status and review of advanced mixed-mode bending fracture test (AMB)</i> . Proc. 7 th ESTC Conf. Dresden, Germany, Sept 18-21, 2018.
[246]	B. Wunderle, D. May, M. Abo Ras, C. Grosse, M. Wöhrmann, V. Bader and J. Keller. <i>Spatially resolved non-destructive in-situ detection of interface degradation by remote electrical readout of an on-chip thermal pixel (Thixel) matrix</i> . Proc. 7 th ESTC Conf. Dresden, Germany, Sept 18-21, 2018.
[245]	M. Schaal, M. Klingler, and B. Wunderle. <i>Silver Sintering in Power Electronics: The State of the Art in Material Characterization and Reliability Testing</i> . Proc. 7 th ESTC Conf. Dresden, Germany, Sept 18-21, 2018.
[244]	A. Kumar, M. Schulz, S. Sheva, J. Keller, V. Bader, M. Wöhrmann, J. Bauer, D. May, and B. Wunderle. <i>In-situ detection of delamination in inaccessible interfaces of a silicon flip-chip assembled on a PCB and a backside mounted heatsink by a thermal pixel (Thixel) array</i> . Proc. 7 th ESTC Conf. Dresden, Germany, Sept 18-21, 2018.
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[242]	C. Grosse, M. Abo Ras, A. Varpula, K. Grigoras, D. May, B. Wunderle, S. Gomès, and M. Prunnila. <i>Novel microfabricated sensor platform with through-glass vias for 3-omega thermal characterization of solid and liquid samples</i> . Sensors and Actuators A: Physical, Vol. 278, pp. 33-42, 2018.
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[240]	S. Böttger, N. Jöhrmann, J. Bonitz, B. Wunderle, S.E. Schulz, S. Hermann. <i>Scaling up Integration of Carbon Nanotubes into Micro-Electro-Mechanical Systems</i> . Proc. Smart Systems Integration Conf., Dresden, Germany, April 11-12, 2018.
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[238]	M. Schulz, H. S. Nabi, D.-K. Vu, B. Wunderle, and J. Keller. <i>Characterization of EMC/LF Interfacial Fracture Toughness using the Advanced Mixed-Mode Bending Method</i> . Proc. 19 th Eurosime Conf. Toulouse, April 15-18, 2018.
[237]	N. Pflügler, G.M. Reuther, D. Udiljak, R. Pufall, and B. Wunderle. <i>Advanced Risk Analysis of Interface Delamination in Semiconductor Packages: A Novel Experimental Approach to Calibrating Cohesive Zone Elements for Finite Element Modelling</i> . Proc. 19 th Eurosime Conf. Toulouse, April 15-18, 2018.
[236]	B. Wunderle, D. May, U. Zschenderlein, R. Ecke, M. Springborn, N. Jöhrmann, K.A. Pareek, J. Heilmann, M. Stiebing, J. Arnold, R. Dudek, S. Schulz, M.J. Wolf, and S. Rzepka. <i>Thermo-mechanical Characterisation of Thin Sputtered Copper Films on Silicon: Towards Elasto-Plastic, Fatigue and Subcritical Fracture-Mechanical Data</i> . Proc. 19 th Eurosime Conf. Toulouse, April 15-18, 2018.
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[234]	B. Wunderle, D. May, J. Heilmann, J. Arnold, J. Hirscheider, J. Bauer, and M. Abo Ras. <i>A novel Concept for Accelerated Stress Testing of Thermal Greases and In-situ Observation of Thermal Contact Degradation</i> . Proc. 17 th Itherm Conf. San Diego, CA, USA, May 28 – June 1, 2018. (Best paper)

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[232]	D. May, M. Abo Ras, and B. Wunderle. <i>µWatt Wärmequelle zur Kalibration und Benchmark von IR LockIn-Systemen</i> . Thermographie-Kolloquium 2017.
[231]	D.R. Wargulski, M. Abo Ras, D. May, B. Wunderle. „TIMAwave“ ein innovatives Messsystem zur Bestimmung der Temperaturleitfähigkeit von Feststoffen bei hohen Temperaturen. IMAPS München, 19./20.Oktober 2017.
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[229]	G.M. Reuther, N. Pflügler, D. Udiljak, R. Pufall, and B. Wunderle. <i>A novel experimental approach to calibrating cohesive zone elements for advanced risk analysis of interface delamination in semiconductor packages</i> . Proc. 21 st EMPC Conf., Warsaw, Poland, Sept 10-13, 2017.
[228]	J. Heilmann, I. Nikitin, U. Zschenderlein, D. May, K. Pressel, and B. Wunderle. <i>Reliability experiments of sintered silver based interconnections by accelerated isothermal bending tests</i> . Microelectronics Reliability, Vol. 74, pp 136-146, 2017
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[225]	M. Abo Ras, D.R. Wargulski, D. May, and B. Wunderle. <i>“TIMAwave” an Innovative Test Platform for Thermal Diffusivity Measurement of Solid Materials at High Temperature</i> . Proc. 23 st Therminic Conf. Amsterdam, The Netherlands, Sept 27-29, 2017.
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[223]	M. Stiebing, D. Vogel, W. Steller, M. J. Wolf, U. Zschenderlein, and B. Wunderle. <i>Correlation between Mechanical Material Properties and TSV-induced Stress in 3D-Integrated Silicon Microstructures</i> . Proc. 18th EuroSimE Conf., Dresden, Germany, April 2-5, 2017.
[222]	B. Wunderle, D. May, M. Abo Ras, and J. Keller. <i>Non-destructive in-situ monitoring of delamination of buried interfaces by a thermal pixel (Thixel) chip</i> . Proc. 16 th Itherm Conf., Orlando, USA, May 30 - June 2, 2017. (Best Paper)
[221]	U. Zschenderlein, K. Suresh, M. Baum, M. Weißbach, and B. Wunderle. <i>Advanced study about the determination of elastic-plastic properties of thin films by micro bending tests</i> . Proc. 18th EuroSimE Conf., Dresden, Germany, April 2-5, 2017.
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[219]	N. Jöhrmann, S. Hartmann, K. Jacob, J. Bonitz, K. MacArthur, S. Hermann, S.E. Schulz, and B. Wunderle. <i>A test device for In Situ TEM investigations on failure behaviour of carbon nanotubes embedded in metals under tensile load</i> . Proc. 18th EuroSimE Conf., Dresden, Germany, April 2-5, 2017.
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[208]	M. Abo Ras, D. May, J. Heilmann, Bast, Winkler, B. Michel, R. Eisele, and B. Wunderle <i>Processing-Structure-Property Correlations of Sintered Silver</i> . Proc. 15th Itherm Conf., Las Vegas, USA, May 30 – June 2, 2016.
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[201]	P. Meszmer, K. Hiller, R.D. Rodriguez, E. Sheremet, D.R.T. Zahn, M. Hietschold, and B. Wunderle. <i>Raman based stress analysis of the active areas of a piezoresistive MEMS force sensor - experimental setup, data processing and comparison to numerically obtained results</i> . Proc. 17th EuroSimE Conf., Montpellier, France, April 17-20, 2016.

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