CURRICULM VITA

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North Carolina State University
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Contents:

PERSONAL:
Marital Status: Married
Place of Birth: Rochester, New York, USA

EDUCATION:
Ph.D. in Electrical Engineering - 1989
Virginia Polytechnic Institute and State University (Virginia Tech)
BSEE, MSEE in Electrical Engineering
State University of New York at Buffalo

CITIZENSHIP:
United States

SOCIETIES:
Senior Member, Institute of Electrical and Electronics Engineers (IEEE) 1992
Components, Packaging and Manufacturing Technology Society
Electron Devices Society
Industry Applications Society
Industrial Electronics Society

Power Electronics Society
Power & Energy Society
Chair, IEEE Electronic Packaging Society, Power & Energy Technical Committee
Fellow, International Microelectronics and Packaging Society (IMAPS)
IMAPS, Director on the Executive Committee
Member of the American Society of Mechanical Engineers (ASME)-2018

EXPERIENCE SUMMARY: *(More details in Appendix-1)*

Professor, Research, Department of Electrical and Computer Engineering Department, College of Engineering, North Carolina State University, August 2011 – present.
Director, Laboratory for Packaging Research in Electronic Energy Systems (PREES), North Carolina State University, September 2011 – present

Professor, Research, Electrical Engineering Department, School of Engineering and Applied Sciences, State University of New York at Buffalo, March 1997 – December 2011.
Director, Electronic Power and Energy Research Laboratory, State Univ. of NY at Buffalo

Assistant Professor, Dept. of Electrical Engineering, Watson School of Engineering and Applied Sciences, State University of New York at Binghamton, Binghamton, New York, September 1994-August 1998. *Research Assistant Professor-(full-time, sole PI)*, State University of New York Research Foundation, Binghamton, New York, January 1993-September 1994.

Assistant Professor, Department of Electrical Engineering, College of Engineering and Applied Sciences, Auburn University, Auburn, Alabama, September 1988 - August 1992.

Instructor (full time), Department Electrical Engineering, College of Engineering and Applied Sciences, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, September 1983 - August 1988.

Doctoral Student (Co-advisors: Drs. F. William Stephenson and Fred C. Lee), Virginia Polytechnic Institute and State University, Blacksburg, Virginia, September 1983 - August 1988.

Senior Engineer, Research and Development Center, Carrier Corporation, Syracuse, New York, September 1982 - August 1983.

Electrical Engineer, Corporate Research and Development Center, General Electric Company, Schenectady, New York, May 1977-August 1982.

President, DensePower, LLC, Vestal, New York, Jun 2008 – March 2014
President, DCHopkins & Associates, LLC, Vestal, New York, est. DBA-1998, LLC-2008

Fellowships, Visiting Faculty (1989 – 1997, Summer Programs)

Date	Topic	Sponsor	TPOC

1995/ 1997	Assessment and Strategic Planning in Power Electronics	Lawrence Livermore National Laboratories, Power Conversion Thrust Area, Livermore, CA	Mr. Mark Newton
1994	Sustaining Base Information Systems (SBIS) - Long Term Technical Tests	TECOM – MITRE Corporation, Ft. Huachuca, AZ	Maj. Jeffery Hustad
1993	High Frequency Resonant Effects in Batteries	Ohio Space Institute, (NASA-LeRC) Cleveland, OH,	Dr. Ira T. Myers
1992	Resonant Power Conversion	Power Technologies Directorate, NASA Lewis Res. Ctr., Cleveland, OH	Dr. Ira T. Myers
1991	High Efficiency Space Power Systems and Measurements	Power Technologies Directorate, NASA Lewis Res. Ctr., Cleveland, OH	Mr. Eric Baumann
1990	Power Supply Systems	Power Technologies, Marshall Space Flt Ctr., Huntsville, Al	
1989	Pulse Power Characterization of Power Semiconductor Switches	Pulse Power Technology Br., US Army LABCOM-ETDL, Ft. Monmouth, NJ	Mr. Tom Podlesak

FUNDING FOR EDUCATION, RESEARCH AND SCHOLARLY ACTIVITIES:

[Dr Hopkins has participated as PI or Co-PI in $200M in awards, and direct expenditure of over $25M (in 2023 dollars)]

Circa: North Carolina State University (NC State)

1. "Fundamental Study and Modeling of Pressure-Tolerant Power Electronics Systems,"
   Contract: NSF -ECCS
   PI/Co-PI: D. C. Hopkins, Co-PI (10%)
   Term: 15 June 2024 – 31 May 2027
   Amount: $399,680

2. "Requirements for a 3DHI Power Microsystem (3DHIP) and Manufacturing Center,"
   Contract: DARPA NGMM Phase-0
   PI/Co-PI: D. C. Hopkins, PI
   Term: 01 March 2023 – 31August 2023
   Amount: $679,526

3. "Demonstration of 100 kW SiC Inverter with Soft-Switching dv/dt Filter and Ultra High Efficiency for Motor Drives,"
   Contract: Power America Institute – Member Initiated Projects (Round 4)
   PI/Co-PI: D. C. Hopkins, Co-PI-20%
   Term: 01 Jan 2022 – 31 Dec 2022
   Amount: $249,999

4. "Module Design Using Advanced Power Packaging Technology for Near Term Commercialization,"
   Contract: Power America Institute – Member Initiated Projects (Round 3)
   PI/Co-PI: D. C. Hopkins, PI-80%
   Term: 15 Mar 2021 – 14 Mar 2022
   Amount: $200,234

5. "HENKEL Material Testing Services"
   Contract: Henkel Corp (PFSA)
   PI/Co-PI: D. C. Hopkins, Co-PI-100%
   Term: 08 Dec 2020 – 08 Dec 2023
   Amount: $28,056.00

6. "Fabrication of a High-Power Capacitor Tester (HPCT) for Advanced Capacitor Testing"
   Contract: KEMET Electronics Corp (PFSA)
   PI/Co-PI: D. C. Hopkins, PI-50%
   Term: 15 Jan 2020 – 31 Mar 2021
   Amount: $104,795.50

7. "Development of 3.3 kV-Capable, Open-Source, Low Cost Packaging Solution for SiC Transistor and Diode Testing"
   Contract: Power America Institute/DOE
   PI/Co-PI: D. C. Hopkins, PI-100%
   Term: 01 Jul 2019 – 31 Jun 2020
   Amount: $498,000

8. "PV Inverter Systems Enabled by Monolithically Integrated SiC based Four Quadrant Power Switch (4-QPS)"
   Contract: Department of Energy (SETO)
   PI/Co-PI: D. C. Hopkins, Co-PI-30%
   Term: 01 Jan 2019 – 31Dec 2022
   Amount: $1,899,033

9. "Highly Robust Integrated Power Electronics Packaging Technology"
   Contract: Army Research Laboratory
   PI/Co-PI: D. C. Hopkins, Co-PI-98%
   Term: 31 May 2018 – 31 Jul 2021
   Amount: $1,050,000

10. "Modeling and Packaging Design of a High Power Density 150A Silicon Carbide Inverter"
    Contract: Power America Institute/DOE
    PI/Co-PI: D. C. Hopkins, Co-PI-100%
    Term: 01 Feb 2018 – 31 Dec 2018
    Amount: $100,000

11. "Power Electronics SME Support of 2a EDG Diode Failure RCE"
    Contract: Duke Energy Carolinas
    PI/Co-PI: D. C. Hopkins, Co-PI-100%
    Term: 08 Jun 2017 – 04 Aug 2017
    Amount: $112,900

12. "WBG Gate Oxide Characterization Project"
    Contract: Sandia National Lab (Radar: 2017-0336)
    PI/Co-PI: D. C. Hopkins, Co-PI-100%
    Term: 13 Dec 2016 – 30 Oct 2017
    Amount: $53,349

13. "PREES Fabrication Service Center"
    Contract: FREEDM System Center
    PI/Co-PI: D. C. Hopkins, PI-100%
    Term: 1 Jan 2017 –
    Amount: $160,000/yr target

14. "Demonstration of a Medium Voltage Power Module for High Density Conversion"
    Contract: Power America Institute/DOE (Radar: 2017-0247)
    PI/Co-PI: D. C. Hopkins, Co-PI-100%
    Term: 15 Jun 2016 – 31 Dec 2017
    Amount: $122,101

15. "Flexible Ceramic Substrate (FCS) Based Power"
    Contract: Texas Instruments Inc.
    PI/Co-PI: D. C. Hopkins, PI-100%
    Term: 1 Jan 2016 – 31 Dec 2016
    Amount: $80,000

16. "SiC Inverter for Electric Vehicle Traction Drive"
    Contract: Power America Institute/DOE
    PI/Co-PI: D. C. Hopkins, Co-PI-30%
    Term: Jun 2015 – May 2016
    Amount: $410,734

17. "Development and Testing of Silicon Carbide Gate Turn-Off Thyristor Based High Power Solid State Circuit Breaker (SSCB) for DC Power Distribution System"
    Contract: ABB, Inc. (Radar: 2014-1161)
    PI/Co-PI: D. C. Hopkins, PI-100%
    Term: 01 Jul 2015- 28 Sep 2016
    Amount: $67,170

18. "FREEDM Systems Center – Post Silicon Devices Test Packaging"
    Contract: College of Engineering – NC State (Radar: 2014-1461)
    PI/Co-PI: D. C. Hopkins, PI-100%
    Term: 01 Sep 2013- 31 Aug 2016
    Amount: $191,831

19. "Power America Institute"
    Contract: Department of Energy
    PI/Co-PI: D. C. Hopkins, Co-PI-8%

Term: May 2014 – Jul 2019
Amount: $140M ($70M w/ $70M match)

20. "Laboratory Development – Packaging Research in Electronic Energy Systems"
Contract: College of Engineering – NC State
PI/Co-PI: D. C. Hopkins, PI-100%
Term: 16 Aug 2011 – 15 Aug 2014
Amount: $633K

Circa: University at Buffalo (SUNY Buffalo)

1. "Workforce Training for the Electric Power Sector ("Gateway to Power" or "G2P")
Contract: Florida Power & Light Company flow thru DOE-OE0000435
PI/Co-PI: H. Stenger, PI; D. C. Hopkins, 50%, M. Safiuddin, 50%
Term: 01 Aug 2010 – 31 July 2013
Amount: UB: $300K (subaward FP&L)

2. "Intelligent, Fault Tolerant, and Robust SSPC for Aircraft Applications"
Contract: Department of Defense, US Navy
PI/Co-PI: D. C. Hopkins, PI-100%
Term: 01 Jan 2011 – 30 June 2011
Amount: $148,806 [$79,993 (UB: $5K); +option $68,813 (UB: $5K)]

3. "Multi-Institutional Curriculum Development and Delivery to Create the New Smart Grid Workforce" – Collaborating Institution
Contract: DOE Workforce Training for the Electric Power Sector DE-FOA-0000152
PI/Co-PI: M. Safiuddin, PI-50%, D. C. Hopkins, Co-PI-50%
Term: 01 Jan 2011 – 31 December 2013
Amount: UB: $400K (~$2.5M primary proposal)

4. "High Reliability SiC Power Switch Module Packaging"
Contract: Office of the Secretary of Defense, US Air Force
PI/co-PI: D. C. Hopkins, PI-100%
Term: June 2008 – December 2010
Amount: DCH&A: $749,846 (UB $100K)

5. "Development of a FREEDM Systems Energy Packaging Initiative"
Contract: FREEDM Systems Center/SUNY (NSF ERC flow through)
PI/co-PI: D. C. Hopkins, PI-100%
PART-1 Develop An Initial Vision
Term: 01 Nov 2008 – 31 August 2009
Amount: $31,134
PART-2 Initiate A Packaging Capability
Term: not funded
Amount: $59,694

6. "Study in the Area of Plug Hybrid Electric Vehicles"
   Contract: National Grid US
   PI/co-PI: D. C. Hopkins, PI-100%
   Term: 01 September 2007 - 31 May 2008
   Amount: $21,300 (NG $15K, UB $5.3K)

7. "Advanced Power Electronics For Mobile Electric Power"
   Contract: US Army, Adv Tech Power Sources Team, Power Generation Branch
   PI/co-PI: D. C. Hopkins, PI-100%
   Term: 15 June 2007 – 15 December 2007
   Amount: $54,204

8. "High Reliability SiC Power Switch Module Packaging"
   Contract: Office of Secretary of Defense, US Air Force
   PI/co-PI: D. C. Hopkins, PI-100%
   Term: 16 February 2007 – 16 August 2007
   Amount: DCH&A: $99,376 (UB $20K)

9. "Metrology Development for Large Area Ceramics"
   Contract: ENrG Corporation
   PI/co-PI: D. C. Hopkins, CoPI-30%
   Term: 01 February 2004 – 31 01 August 2004
   Amount: $56,315

10. "Advanced SiC Converter for Embedded Applications"
    Contract: US Navy, Naval Research Laboratory
    PI/co-PI: D. C. Hopkins, PI-100%
    Term: 01 February 2004 – 31 01 August 2004
    Amount: DCH&A: $69,939

11. "High Temperature P-II Module Development"
    Contract: Precision Magnetics Inc. (flow-through from US Army SBIR Phase II)
    PI/co-PI: D. C. Hopkins, PI-100%
    Term: 01 January 2003 – 02 April 2004
    Amount: $119,000

12. "Design Support and Evaluation"
    Contract: Emerson Advanced Design Center and Components
    PI/co-PI: D. C. Hopkins, PI-100%,
    Term: 2001 – 2003
    Amount: DCH&A: $51,700

13. "Reliability of BGA Solder Joints Operating Under High Current Density"
    Contract: IMAPS Educational Foundation
    PI/co-PI: D. C. Hopkins, PI-100%, restricted funding for Ph.D. student
    Term: September 2001 – August 2002

Amount: $15,000

14. "Assessing the Electrical Power System Infrastructure for the Central Office of the Future"
    Contract: Verizon Communications, flow-thru from NYS Energy Res. & Dev. Authority
    PI/co-PI: D. C. Hopkins, PI-100%
    Term: 01 January 2002 – 30 April 2004, continually delayed)
    Amount: $283,390 (DOE/NYSERDA approved, pending Verizon action, DECLINED)

15. "Pre-Proposal for the Development of the SYSTEL Application and Design Center"
    Contract: Systel Development & Industries Ltd.
    PI/co-PI: D. C. Hopkins, PI-100%
    Term: 12 November 2000 – January 2002
    Amount: $30,200

16. "Support of Report Development: Fuel Cells Technology for Telephone Exchange Power Systems – A Feasibility Study"
    Contract: Verizon Corporation
    PI/co-PI: D. C. Hopkins, PI-100%
    Term: 25 September 2000 – 08 December 2000
    Amount: $8,590

17. "Power Line Carrier Controlled Fluorescent Lighting"
    Contract: JRS Technology Incorporated
    PI/co-PI: D. C. Hopkins, PI-100% (direct 20%)
    Term: September 30, 1999 – March 2001 (Phase I)
    Amount: $683,700 ($410K from DOE, $211K from NYSERDA, $63K from JRS)
    (Total proposed program all phases, $1.38M)
    Term: May 30, 2000 – March 2001 (Phase II)
    Amount: $359,563* (*JRS Technology ceased work on June 09, 2000, project stopped)
    Term: August 30, 2000 – March 2001(Phases III)
    Amount: $332,668 (not executed)

18. "Optimally Selecting Packaging Technologies and Circuit Partitions based on Cost and Performance," (plenary session paper at APEC 2000), and "World Map of Power Packaging Technology"
    Contract: Grundfos A/S, Denmark
    PI/co-PI: D. C. Hopkins, PI-100%
    Term: January 1999 – June 2000
    Amount: $24,772

<u>Circa: Binghamton University (SUNY Binghamton)</u>

1. "High Temperature, High Voltage Power Module Development"
    Contract: Custom Electronics Incorporated (CEI)

PI/co-PI: D. C. Hopkins, PI-100%
Term: November 1996 – October 1997
Amount: $131,186 ($69,090 from CEI, $62,096 BU Match)
(NYSERDA flow-through from CEI, $493,000 Total)

2. "Power Electronics and Power Packaging Laboratory Program"
   Grant: BrushWellman Incorporated (in support of)
   PI/co-PI: D. C. Hopkins, PI-100%
   Term: received April 1996
   Amount: $5,000

3. "Investigation of a Power Package Incorporating a Direct Attached Ceramic/AlSiC Structure,"
   Contract: BrushWellman Incorporated
   PI/co-PI: D. C. Hopkins, PI-80%, J. Pitarresi, PI-20%
   Term: August 1995 – December 1995
   Amount: $9,724

4. "Laboratory/Classroom Instruction and Research Support (Equipment Grant),"
   Grant: Tektronix Incorporated
   PI/co-PI: D. C. Hopkins, PI-100%
   Term: February 10, 1995
   Amount: $38,212.50

5. "Mitigation of Bio-fouling Using Hydrospark"
   Grant: New York State Electric and Gas Corp.
   PI/co-PI: J. C. Driscoll, PI-70%, D. C. Hopkins, CI-30%
   Term: January 1995 – January 1996
   Value: $49,000

6. "Systems Engineering of Shared Resources: Decision Support for the Concept Design Phase –
   Modeling Development,"
   Grant: NASA Lewis Research Center
   PI/co-PI: D. C. Hopkins, PI-100%, one RA
   Term: January 1993 – June 30, 1994
   Amount: $108,628

7. "Assessment of Power Conversion Thrust Area" and "Cost Estimate for the ARM Electronic Circuit Cards,"
   Grant: Lawrence Livermore National Laboratory
   PI/co-PI: D. C. Hopkins, 100%
   Term: July 1, 1995 – June 30, 1996
   Value: (external) $26,500

8. "Power Electronics and Power Packaging Laboratory,"

(directly solicited and negotiated equipment grants and equipment donations)
Grant: Tektronix Incorporated
PI/co-PI: D. C. Hopkins, PI-100%
Term: September 1994 – June 1995
Value: $119, 000 (BU: $51,000, Tektronix: $61,000)

9. "High Density Shunt Regulator Development,"
Contract: Martin Marietta Corporation
PI/co-PI: D. C. Hopkins PI-100%
Term: January 1993 – December 1993
Amount: $49,119

Circa: Binghamton University – Strategic Partnership for Industrial Resurgence (SPIR)

10. "Self-Resonance Characterization for High Voltage Capacitors"
Grant: Custom Electronics Incorporated
PI/co-PI: D. C. Hopkins PI-100%, one RA supported
Term: January 1996 – June 1996
Value: $40,000 ($2,000 from CEI)

11. "Photovoltaic Electric Vehicle Charging Station"
Grant: ETM Solar Works
PI/co-PI: D. C. Hopkins, PI-100%, one RA supported
Term: September 1994 – September 1995
Value: $91,672 (ETM: 32,400, BU: $59,272)

12. "Logarithmic Amplifier and Detector Mixer Development"
Grant: US Dynamics Corporation
PI/co-PI: D. C. Hopkins, PI-100%, one RA supported
Term: November 1994 – January 1995
Value: $35,800 (USDC: 28,040, BU: $7,770)

Circa: Auburn University

1. "Thermal Conductivity of Copper Clad Ceramics"
Grant: Brush Wellman Incorporated
PI/co-PI: D. C. Hopkins, PI-70%, S. H. Bhavnani, CI-30%
Term: November 1991 – October 1992
Value: $19,500

2. "Non-Contact Power Supply,"
Contract: Alabama Power Company,
PI/co-PI: D. C. Hopkins PI-100%
Term: October 1991 - June 1992
Amount: $15,012 (AU cost share $5,136)

3. "Materials Support for the Investigation of Charge Equalization in Serial Batteries,"
   Grant: NASA-Marshal Space Flight Center,
   PI/co-PI: D. C. Hopkins, PI-100%
   Term: June 01,1991 – December 31, 1991
   Amount: $4,335 (AU cost share$1,335)

4. "Equalizing Converters for Serial Battery Charging,"
   Grant: Sol-of-Auburn, solar powered EV project
   PI/co-PI: D. C. Hopkins 100%,
   Term: September 1990 - June 1991
   Value: Internally funded, support one RA position

5. "Sol-of-Auburn,"
   Grant: Auburn University Service,
   PI/co-PI: S. H. Bhavnani-PI, D. C. Hopkins CI-30%
   Term: Jan. 1989 - August 1990
   Value: Cash Donation $65,000; Mat'l Donation $38,000

6. "Suitability of Co-Firable Ceramics for Development of Power Microelectronic Systems,"
   Grant: Auburn Univ. Research-Grant-in-Aid,
   PI/co-PI: D. C. Hopkins, PI-100%; two UGAs
   Term: January 01, 1989 – April 15, 1990
   Value: $3,800

7. "High Density Power Transformer,"
   Contract: Unisys Corporation,
   PI/co-PI: D. C. Hopkins, PI-100%, two UGAs
   Term: September – December, 1989
   Amount: $8,724

8. "Power Electronics Research Laboratory Grant,"
   Grant: Tektronix Incorporated,
   PI/co-PI: D. C. Hopkins, 100%
   Term: November 1989
   Value: $87,536 (AU cost share $20,768, Tektronix $66,768)

HONORS AND AWARDS:

1. "Outstanding Educator Award" Int'l Microelectronics Assembly and Packaging Society, 2013
2. Fellow – International Microelectronics and Packaging Society (IMAPS), November 2007.
3. Nominated Best Paper of Conference, IMAPS Int'l Symp. on Microelectronics, 2006 (1 of 3)

4. “Outstanding Contribution to Education, Research and Professionalism,” IEEE – Region I, 2001
5. IEEE Third Millennium Medal recipient, 1999.
6. Senior Member – International Microelectronics and Packaging Society (IMAPS), ~1996.
7. NYS/UUP PDQWL Term Faculty Development Award, 1995.
8. Recognition of Accomplishment for Sustaining Base Information Services Limited Technical Tests: from C. L. Austin, Prog. Exec. Officer, Dept. of the Army and B. M. Horowitz, Pres. & CEO of MITRE Corp. 1995
9. Best Paper of Session, ISHM Int'l Symp. on Microelectronics, 1988, ‘89, ‘92, ’94.
10. Senior Member – Institute of Electrical and Electronics Engineers (IEEE), 1992.
11. Invited Paper, IEEE Applied Power Electronics Conference, 1991.
12. Sigma Xi 1990.
13. First Place Technical Paper Competition – Alabama Section IEEE 1989.
14. Distinguished Service to ISHM Student Branch, VPI&SU 1988.
15. Eta Kappa Nu 1987.
16. Most Valuable Prof.–HKN/IEEE/ISHM Student Branches, VPI&SU 1986.

BOOKS (CHAPTERS):

1. Power Electronics Handbook, Academic Press, New York, Chapter 35: “Packaging and Smart Power Systems,” 2001; 2nd ed. 2006; 3rd ed. 2011.

PATENTS:

1. US10,325,875B2 “Edge Interconnect Packaging of Integrated Circuits for Power Systems,” Jason M Kulick, Douglas Hopkins, June 18, 2019
2. US 11,784,641 “High Voltage Cascaded SuperCascode Power Switch,” Utkarsh Mehrotra, Douglas C. Hopkins, October 10,2023

REFEREED JOURNAL PUBLICATIONS:

1. “Investigation of High Current Fine Grain Power Delivery for 3D Heterogeneous Integration,” Sourish S. Sinha, Pouria Zaghari, Jong E. Ryu, Bill Bachelor, Raymond A Fillion and Douglas C. Hopkins, *IEEE Trans. on Components, Packaging and Manufacturing Technologies*, TCPMT-2024-274.R1, revision under review.

2. “Electric Field and Thermo-Mechanical Stress Management Using Stacked Substrate Power Module Structure for Medium Voltage Applications,” Sourish S. Sinha, Pouria Zaghari, Jong Eun Ryu, Douglas C. Hopkins, *IEEE Trans. on Components, Packaging and Manufacturing Technologies Journal, Special Section on Power Electronics Packaging*, *in preparation 15Oct’23*

3. "New Methodology for Analyzing Common-Mode Currents Utilizing Ultra-Thin Dielectrics In Power Modules," Tzu-Hsuan Cheng, Sourish S. Sinha and Douglas C. Hopkins, *IEEE Trans. on Components, Packaging and Manufacturing Technologies Journal, Special Section on Power Electronics Packaging*, in preparation 15Oct'23

4. "Scalable 3D Heterogeneously Integrated Power Microsystem (3DHIP) with Embedded GaN HEMT in Glass Substrates," Sourish S. Sinha, Pouria Zaghari, Jong Eun Ryu, Bill Batchelor, Bob Conner, Douglas C. Hopkins, *IEEE Trans. on Components, Packaging and Manufacturing Technologies Journal, Special Section on Power Electronics Packaging*, *in preparation 15Oct'23*

5. "Cost Comparison of the Cascaded SuperCascode Power Switch versus a Paralleled HV MOSFET Power Switch," Utkarsh Mehrotra and Douglas C. Hopkins, *IEEE Power Electronics Regular Paper/Letter/Correspondence, under revision*

6. "Double-Sided Integrated GaN Power Module with Double Pulse Test (DPT) Verification," Sinha, Sourish S., Tzu-Hsuan Cheng, and Douglas C. Hopkins, *Jou. of Microelectronics and Electronic Packaging* vol. 20 (2): pp. 71–81, 2023

7. "Methodologies of Cascading and Scaling to realize High Voltage Cascaded SuperCascode Power Switch," Utkarsh Mehrotra and Douglas C. Hopkins, *IEEE Jou. of Emerging and Selected Topics in Power Electronics,* Print ISSN: 2168-6777, Online ISSN: 2168-6785, DOI: 10.1109/JESTPE.2023.3314025

8. "Bidirectional Solid-State Circuit Breaker Super Cascode for MV SST and Energy Systems," Utkarsh Mehrotra, Bahji Ballard, and Douglas C. Hopkins, *IEEE Jou, of Emerging and Selected Topics in Power Electronics*, v 10, i 4, 2022 DOI: 10.1109/JESTPE.2021. 3081684

9. "Thermal and Reliability Characterization of an Epoxy Resin-Based Double-Side Cooled Power Module," T. H. Cheng, K. Nishiguchi, Y. Fukawa, B. J. Baliga, S. Bhattacharya and D. C. Hopkins, *Jou. of Microelectronics and Electronic Packaging*, vol.18, pp.123-136, 2021

10. "3-D Prismatic Packaging Methodologies for Wide Band Gap Power Electronics Modules," Haotao Ke, Utkarsh Mehrotra, Douglas C. Hopkins, *IEEE Tran. on Power Electronics*, v 36, i 11, pp 13057-66, Nov 2021DOI: 10.1109/ TPEL.2021.3081679

11. "1.2 kV, 10 A, 4H-SiC Bi-Directional Field Effect Transistor (BiDFET) with Low On-State Voltage Drop," A. Kanale, T-H. Cheng, K. Han, B. J. Baliga, S. Bhattacharya, and D. Hopkins, in *Mat. Sci. Forum.*, vol 1004, Jul 2020, pp. 872-881, doi: 10.4028/www.scientific.net/msf.1004.872

12. "Design, Package and Hardware Verification of a High Voltage SiC Current Switch", Ankan De, Adam Morgan, Vishnu Mahadeva Iyer, Haotao Ke, Xin Zhao, Kasunaidu Vechalapu, Douglas Hopkins, S. Bhattacharya; *IEEE Jou of Emerging and Selected Topics in Power Electronics, Special Issue on Wide Bandgap Power Devices and Applications*, vol. 6, no. 1, pp. 441-450, March 2018, doi: 10.1109/JESTPE.2017.2727051.

13. "Feasibility of a MEMS Sensor for Gas Detection in HV Oil-Insulated Transformer," K. P. Bhat, K. W. Oh and D. C. Hopkins, IEEE Transactions on Industry Applications, vol. 49, no. 1, pp. 316-321, Jan.-Feb. 2013, doi: 10.1109/TIA.2012.2229681.

14. "Electromigration Time to Failure of SnAgCuNi Solder Joints," C. Basaran, S. Li, D. C. Hopkins, and D. Veychard, *J. of Applied Physics* 106, 013707 (2009)

15. "A Dynamic Model for a Gas-Liquid Corona Discharge Using Neural Networks," A. Hosny, D. C. Hopkins, et.al, *IEEE Trans. on Power Engineering*, vol. 24, no. 3, pp. 1234-1239, July 2009, doi: 10.1109/TPWRD.2008.2005880.

16. "Experimental Thermomigration Studies in Lead-Free Flip Chip Solder Joints," Mohd F. Abdulhamid, Cemal Basaran , and Douglas C. Hopkins, *Appl. Physics Ltrs*, August 2006.

17. "Experimental damage mechanics of micro/power electronics solder joints under electric current stresses," Hua Ye, Cemal Basaran, Douglas C. Hopkins, *Int'l J. of Damage Mechanics*, v15, n1, January 2006, p 41-67

18. "Flip chip solder joint failure modes," C. Basaran, H. Ye, D.C. Hopkins, D. Frear, J.K. Lin, *Advanced Packaging*, v 14, n 10, October 2005, p 14-19

19. "Failure modes of flip chip solder joints under high electric current density," C. Basaran, H. Ye, D.C. Hopkins, D. Frear, J.K. Lin, *Trans. of the ASME. J. of Electronic Packaging*, v 127, n 2, June 2005, p 157-63

20. "Deformation of Microelectronic Solder Joints Under Current Stressing and Numerical Simulation I," C. Basaran, H. Ye, D.C. Hopkins, *Int'l J. of Solids and Structures*, vol. 41, n 18-19, pp. 4939-4958, September 2004.

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1. “Enhanced Reactive Power Transfer Capability for a Single-Stage Electronic Transformer Based on Monolithic Bidirectional FETs (BiDFETs),” Shubham Rawat, Ramandeep Narwal, Subhashish Bhattacharya, Jayant Baliga and Douglas Hopkins, IEEE Energy Conversion Conference and Expo (ECCE) Phoenix, AZ, Oct 20-24, 2024

2. "A 400W, 250kHz (2kW Peak) Integrated GaN Half Bridge Power Module in a Non-Isolated Buck Converter,” Sourish S Sinha, Tzu-Hsuan Cheng, Douglas C Hopkins, IEEE Applied Power Electronics Conf. (APEC), Long Beach, CA, February 25-29, 2024

3. “Single Sided Integrated GaN Power Module using Thin Substrate for 1kW Non-Isolated Converter Application,” Sourish S. Sinha, Pouria Zaghari, Jong Eun Ryu, Douglas C. Hopkins, IEEE Wksp on Wide Bandgap Power Devices and Applications (WiPDA), Charlotte, NC, 4-6 Dec. 2023.

4. “Isolated Single-stage Three-phase AC/DC Converter using Bidirectional Switches,” Ramandeep Narwal, Isaac Wong, Subhashish Bhattacharya, B. Jayant Baliga and Douglas C. Hopkins, IEEE Energy Conversion Congress and Exposition (ECCE’23), Nashville, TN Oct 29 – Nov 02, 2023

5. “Hybrid Thyristor and SiC FET Power Module for High-Efficiency AC Motor Control,” Chunmeng Xu, Adam J. Morgan, Douglas C. Hopkins and Pietro Cairoli, IEEE Energy Conversion Congress and Exposition (ECCE’23), Nashville, TN Oct 29 – Nov 02, 2023

6. "Design and Optimization of High-Frequency Transformer for Dual Active Bridge Converter with SiC BiDFET for Solar PV Applications," Isaac Wong, Ramandeep Narwal, Subhashish Bhattacharya, B. Jayant Baliga and Douglas C. Hopkins, IEEE Energy Conversion Congress and Exposition (ECCE'23), Nashville, TN Oct 29 – Nov 02, 2023

7. "Finite Element Analysis and Fatigue Life Prediction of A Laterally Conducting Gan-Based Power Package Under Thermal Cycling," Pouria Zaghari, Sourish S. Sinha, Jong Eun Ryu, Paul D. Franzon, Douglas C. Hopkins, Proc ASME 2023 Int'l Mechanical Eng. Congress and Exposition (IMECE 2023), Oct 29-Nov 2, 2022, New Orleans, LA, IMECE 2023-111682, *Best Paper: Student Innovative Power Award.*

8. "Investigation of High Current Fine Grain Power Delivery for 3D Heterogeneous Integration," Sourish S Sinha, Pouria Zaghari, Jong E Ryu, Bob Conner, Bill Batchelor, Raymond A Fillion, Douglas C Hopkins, 34th Electronics Packaging Symposium, Albany NY, 6-7 September 2023

9. "Thermal cycling and fatigue life analysis of a GaN Wide-Bandgap Laterally Conducting Power Packaging," Pouria Zaghari, Sourish Sinha, Jong Ryu, Douglas Hopkins, Paul Franzon, IEEE International 3D System Integration Conference (3DIC), 10-12 May, 2023, Cork, Ireland

10. "The BiDFET Device and Its Impact on Converters," B. Jayant Baliga, Douglas Hopkins, Subhashish Bhattacharya, Aditi Agarwal, Tzu-Hsuan Cheng, Ramandeep Narwal, Ajit Kanale, Suyash Sushilkumar Shah, and Kijeong Han, IEEE Power Electronics Magazine, Vol.10, No.1, pp 22-29, March 2023

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13. "Analysis and Characterization of Four-quadrant Switches Based Commutation Cell," Ramandeep Narwal, Shubham Rawat, Ajit Kanale, Tzu-Hsuan Cheng, Aditi Agarwal, Subhashish Bhattacharya, B. Jayant Baliga, Douglas C. Hopkins, IEEE Applied Power Electronics Conference, Orlando, FL, 19-23 March, 2023

14. "Advanced GaN IPM for High-Frequency Converter Applications Enabled with Thin-Substrates," Sourish Sinha, Tzu-Hsuan Cheng, Keval Parmar, Douglas C Hopkins, IEEE Applied Power Electronics Conference, Orlando, FL, 19-23 March, 2023

15. "Heterogeneous Integration of Power Electronics (IPE) and the Road Ahead," Douglas C Hopkins, 33rd Electronic Packaging Symposium, Binghamton, NY, 7-8 Sept 2022

16. "Double Sided Integrated GaN Power Module with Double Pulse Test (DPT) Verification," Sourish S. Sinha, Tzu-Hsuan Cheng, Wensong Yu, Douglas C. Hopkins, Int'l Microelectronic Sym., Boston, MA, 4-7 October 2022

17. “Design Considerations for Developing 1.2 kV 4H-SiC BiDFET-enabled Power Conversion Systems,” Ajit Kanale, Tzu-Hsuan Cheng, Ramandeep Narwal, Aditi Agarwal, B. Jayant Baliga, Subhashish Bhattacharya, Douglas C. Hopkins, IEEE Energy Conversion Congress and Expo. (ECCE’22), Detroit, MI, 2022, pp. 1-7, doi: 10.1109/ECCE50734.2022.9947715

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35. “Optimized Highly Efficient SSCB Using Organic Substrate Packaging for Electric Vehicle Applications”, Utkarsh Mehrotra, Bahji Ballard, Tzu-Hsuan Cheng, B. Jayant Baliga,

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36. “Design and Integration of WBG Solid State Circuit Protection,”, Douglas C. Hopkins, Bahji Ballard, Utkarsh Mehrotra, *Professional Education Seminar (competitively selected, 3-hrs)* IEEE Applied Power Electronics Conference, Anaheim, CA, March 17-21, 2019

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38. “Designing for Switching Stresses in a Circuit Breaker Application using SiC Semiconductors,” Bahji Ballard, Utkarsh Mehrotra, Douglas C Hopkins, *Professional Education Seminar (competitively selected, 1.5-hrs)* 7th IEEE Workshop on Wide Bandgap Power Devices and Applications (WiPDA), Raleigh, NC, October 29-31, 2019

39. “A High-Bandwidth Resistive Current Sensing Technology for Breakers and Desaturation Protection,” Bo Gao, Utkarsh Mehrotra, Douglas C. Hopkins, 7th IEEE Workshop on Wide Bandgap Power Devices and Applications (WiPDA), Raleigh, NC, October 29-31, 2019

40. “Advances in Organic Substrate Approaches for High Voltage Power Electronics Packaging,” Douglas C Hopkins, Tzu-Hsuan Cheng, Bo Gao, Lauren Boteler, ASME-International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK), Anaheim, CA, October 7-9, 2019 *Invited Talk*

41. “Characterization of a Topside Cooled Epoxy-Resin Composite Dielectric (ERCD) Package for Bi-Directional Power Switch,” Tzu-Hsuan Cheng, Bo Gao, Kenji Nishiguchi, Douglas Hopkins, ASME- International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK), Anaheim, CA, October 7-9, 2019

42. “Thermal Characteristics And Simulation of An Integrated GaN eHEMT Power Module,” Jorgensen, Asger Bjorn (Aalborg University, Department of Energy Technology, Pontoppidanstraede 111, Aalborg; 9220, Denmark); Cheng, Tzu-Hsuan; Hopkins, Douglas; Beczkowski, Szymon; Uhrenfeldt, Christian; Munk-Nielsen, Stig Source: 2019 21st European Conference on Power Electronics and Applications, EPE 2019 ECCE Europe, September 2019, 21st European Conference on Power Electronics and Applications, EPE 2019 ECCE Europe, DOI: 10.23919/epe.2019.8915012

43. “1.2 kV, 10 A, 4H-SiC Bi-Directional Field Effect Transistor (BiDFET) with Low On-State Voltage Drop,” Ajit Kanale1, Tzu-Hsuan Cheng, Kijeong Hanl, B. Jayant Baliga, Subhashish Bhattacharya, Douglas Hopkins, Int’l. Conf. on Silicon Carbide and Related Materials, Kyoto Japan, 29 Sept – 04 Oct. 2019

44. “Power Packaging Assembly Challenges,” Douglas C Hopkins, A.R.E.A. Consortium Meeting Universal Instruments, Binghamton, NY, March 27-28, 2019 *(Invited Keynote)*

45. “New Short Circuit Failure Mechanism for 1.2kV 4H-SiC MOSFETs and JBSFETs,” Kijeong Han, Ajit Kanale, B. J. Baliga, Bahji Ballard, Adam Morgan, and Douglas C. Hopkins IEEE Workshop on Wide Bandgap Power Devices and Appl (WiPDA), Atlanta, GA, Oct 31-Nov 2, 2018

46. “6.5kV SiC JFET-based Super Cascode Power Module with High Avalanche Energy Handling Capability,” Bo Gao, Adam Morgan, Yang Xu, Xin Zhao, Bahji Ballard, Douglas C. Hopkins, IEEE Workshop on Wide Bandgap Power Devices and Appl (WiPDA), Atlanta, GA, Oct 31-Nov 2, 2018

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48. “6.0kV, 100A, 175kHz Super Cascode Power Module for Medium Voltage, High Power Applications,” Bo Gao, Adam J. Morgan, Yang Xu, Xin Zhao, Douglas C. Hopkins, IEEE Applied Power Electronics Conference, San Antonio, TX, March 4-8, 2018

49. “Performance optimization of A 1.2 kV SiC High Density Half Bridge Power Module In 3D Package,” Xin Zhao, Bo Gao, Liqi Zhang, Douglas C Hopkins, Alex Q Huang, Applied Power Electronics Conference, San Antonio, TX, March 4-8, 2018

50. “Characterization of Novel Materials for Thin Flexible Power Substrates for High-Density Power Electronics,” Douglas C Hopkins and Xin Zhao, and K. Jagannadham, Wuttichai Reainthippayasakul, Michael T. Lanagan, Yifan Jiang, Bo Gao, Kenji Nishiguchi, Yoshi Fukawa, ASME Int’l Technical Conf And Exhibition on Packaging Integration of Electronic and Photonic Microsystems (InterPACK), San Francisco, CA, 29Aug - 01Sep 2017. *Invited Keynote Presentation*

51. “True 3D Power Packaging - Higher Densities Through Orthogonality,” Douglas C Hopkins, Haotao KE, ASME Int’l Technical Conf and Exhib on Packaging Integration of Electronic and Photonic Microsystems (InterPACK), San Francisco, CA, 29Aug - 01Sep 2017

52. “Investigation of Package Effects on the Edge Termination E-Field for HV WBG Power Semiconductors,” Haotao Ke, Yifan Jiang, Adam J. Morgan, and Douglas C. Hopkins, IMAPS 50th Int’l Symp. on Microelectronics, Raleigh, NC Oct 9-12, 2017

53. “Characterization of Ultra-Thin Epoxy-Resin Based Dielectric Substrate for Flexible Power Electronics Applications,” Xin Zhao1, K. Jagannadham, Wuttichai Reainthippayasakul, Michael T. Lanagan, Douglas C. Hopkins, IMAPS 50th Int’l Symp. on Microelectronics, Raleigh, NC Oct 9-12, 2017

54. “Multiphysics Performance Evaluation of Flexible Substrate Based 1.2kV SiC Half Bridge Intelligent Power Module with Stacked Dies,” Xin Zhao, K. Jagannadham, Douglas C. Hopkins, IMAPS 50th Int’l Symp. on Microelectronics, Raleigh, NC Oct 9-12, 2017

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56. “Flexible Epoxy-Resin Substrate Based 1.2 kV SiC Half Bridge Module with Ultra-low Parasitics and High Functionality,” Xin Zhao, Bo Gao, Yifan Jiang, Liqi Zhang, Sizhen Wang, Yang Xu, Kenji Nishiguchi, Yoshi Fukawa, Douglas C. Hopkins, IEEE Energy Conversion Congress & Exposition (ECCE), Cincinnati, Ohio, October 1 – 5, 2017

57. “Numerical and Experimental Determination of Temperature Distribution in 3D Stacked Power Devices,” Adam Morgan, Leila Choobineh, David Fresne and Douglas C. Hopkins, ASME 2017 Int’l Technical Conf. and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems, San Francisco, California, August 29–September 1, 2017 (doi:10.1115/IPACK2017-74222)

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60. “Ultra Low Leakage Module for 12kV-225℃ SiC Semiconductor Testing,” Xin Zhao, Haotao Ke, Yifan Jiang, Adam Morgan, Yang Xu, Douglas C. Hopkins, 49th Int’l Symp. on Microelectronics, Pasadena CA, 10-13 Oct 2016

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63. “A New Power Module Design Resource – Laboratory for Packaging Research in Electronic Energy Systems (PREES),” Douglas C Hopkins, Yang Xu, Haotao Ke, and Adam Morgan [Poster Presentation], 2016 Electronics Packaging Symp & Heterogeneous Integration Workshop, Binghamton, NY, Oct 6-7, 2016

64. "Design Methodology for a Planarized High Power Density EV/HEV Traction Drive using SiC Power Modules", Dhrubo Rahman, Adam Morgan, Rui Gao, Yang Xu, Wensong Yu, Douglas C. Hopkins and Iqbal Husain, IEEE Energy Conversion Congress & Exposition (ECCE 2016), Milwaukee, WI, Sept 18-22, 2016

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70. "Decomposition and Electro-Physical Model Creation of the CREE 1200V, 50A 3-Ph SiC Module," A. Morgan, Y. Xu, D. C Hopkins, I. Husain, IEEE Applied Power Electronics Conference and Exposition, Long Beach, CA, 20-24 March 2016 *(Best Paper of Session)*

71. "3D Power Electronics Packaging and Additive Manufacturing," D.C. Hopkins, 3rd IEEE Workshop on Wide Bandgap Power Devices and Appl., Blacksburg, VA, Nov 204, 2015

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77. “Investigation of Rapid-Prototyping Methods for 3D Printed Power Electronic Module Development,” H. KE, A. Morgan, R. Aman, D. C. Hopkins, 47th IMAPS Int’l Symp. on Microelectronics, San Diego, CA Oct 13-16, 2014

78. “Introduction to 3D Printed Power Electronics & Wide Bandgap Power Semiconductor Packaging,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 8-hrs)*, 47th IMAPS Int’l Symp. on Microelectronics, San Diego, CA Oct 13-16, 2014

79. “Printed Interfacial Interconnects in High Power Module,” D. C. Hopkins, Y. Xu, H. KE, Special Session, IEEE Applied Power Electronics Conference, Ft. Worth, TX, March 16-20, 2014 *Invited*

80. “Misconception of Thermal Spreading Angle and Misapplication to IGBT Power Modules,” Y. Xu, D. C. Hopkins, IEEE Applied Power Electronics Conf., Ft. Worth, TX, March 16-20, 2014

81. “Conceptual Development Using 3D Printing Technologies for 8kV SiC Power Module Package,” H. Ke, Y. Xu, D. C. Hopkins, 46th IMAPS Int’l Symp. on Microelectronics, Orlando, FL, Sep 30 – 03 Oct, 2013

82. “Introduction to 3D Power Electronics & Post-Silicon Device Packaging,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 8-hrs)*, 46th IMAPS Int’l Symp. on Microelectronics, Orlando, FL, Sep 30 – 03 Oct, 2013

83. “Mean time to failure of SnAgCuNi solder joints under DC,” Basaran, C. ; Shidong Li; Hopkins, D.C.; Wei Yao Source: 2012 13th IEEE Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, p 518-20, 2012

84. “Understanding Impact of New Additive Manufacturing Techniques on Power Electronics Design,” D C Hopkins, Special Session, IEEE Applied Power Electronics Conf., Long Beach, California, 18-21 March 2013 *Invited*

85. “Development of Printed Power Packaging for a High Voltage SiC Module,” H. Ke, D.C. Hopkins, IMAPS 2012 - 45th IMAPS Int’l Symp. on Microelectronics, San Diego, California, Sept 9 - 13, 2012

86. “Advanced Bus Bar System Design,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3-hrs),* IEEE Energy Conversion Congress & Exposition (ECCE), Raleigh, NC, Sep 15-20, 2012

87. “Extreme Thermal Transient Stress Analysis with Pre-Stress in a Metal Matrix Composite Power Package,” D. C. Hopkins, T. Baltis, J. M. Pitaressi, D. R Hazelmyer, High Temperature Electronics Conference (HiTEC), Albuquerque, NM, May 8-10, 2012

88. “Point Source Thermal Management in Dense Power Modules and Systems,” D C Hopkins, Special Session, IEEE Applied Power Electronics Conference, Orlando, FL, Feb 5-9, 2012 *Invited Paper.*

89. “Printable Packaging for High Power, High Temperature Power Module,” D C Hopkins IEEE Applied Power Electronics Conf., Orlando, FL, Feb 5-9, 2012

90. “Results for an Al/AlN Composite 350ºC SiC Solid-State Circuit Beaker Module,” K. Bhat, Y. B. Guo, Y. Xu, D.R. Hazelmyer, D.C. Hopkins, IEEE Applied Power Electronics Conf., Orlando, FL, Feb 5-9, 2012.

91. “Bus Bars – Slap Them Together and They Ought to Work,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3-hrs)*, IEEE Applied Power Electronics Conf., Orlando, FL, Feb 5-9, 2012

92. “High Thermal-Transient Packaging for a SiC-Based Solid State Circuit Breaker,” T. Baltis, D. C. Hopkins, J. M. Pitaressi, D. R Hazelmyer, Proc. of the 45th IMAPS Int’l Symp. on Microelectronics, Long Beach, CA, October 10-14, 2011

93. “Ground Rules for Designing Power Electronics into Evolving MicroGrid Applications,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3-hrs)*, IEEE Applied Power Electronics Conf., Ft. Worth, TX, Mar 6-10, 2011

94. “High Current and Thermal Transient Design of a SiC SSPC for Aircraft Application,” Y. B. Guo, K. P. Bhat, A. Aravamudhan, D. C. Hopkins, D. R. Hazelmyer, IEEE Applied Power Electronics Conf., Ft. Worth, TX, Mar 6-10, 2011

95. “A MEMS Sensor for Gas Detection in High Voltage Oil Filled Equipment,” K. P. Bhat, D. C. Hopkins, K. Oh, IEEE Industry Appl. Soc. Conf., Electrostatic Process Committee, Houston, TX, Oct. 3-7 2010

96. “Development and Testing of a 350˚C SiC MCPM with Cast Metal Matrix Composites”, D. C. Hopkins, Y. B. Guo, A. Aravamudhan, J. D. Scofield, 2010 Int’l Electronics Packaging Symp., Niskayuna, NY, Sept. 9-10, 2010

97. “Solid-State Protection: Dual-use for Microgrids,” D. C. Hopkins, Advanced Energy Conf., New York, NY, Nov. 8-9, 2010

98. “Development of A SiC SSPC Module with Advanced High Temperature Packaging,” D. C. Hopkins, Y. B. Guo, H. E Dwyer, J. D. Scofield, High Temperature Electronics (HiTEC), Albuquerque, NM, May 11-13, 2010

99. “Augmenting Bucholz Relay Using Embedded Mems Gas Sensor,” K. P. Bhat, D. C. Hopkins, IEEE 2010 IEEE PES Transmission and Distribution Conf., New Orleans, LA, April 19-22, 2010

100. IEEE Applied Power Electronics Conference 2010, “Power Electronics for the Smart Distribution Grid,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3 hrs)*, IEEE Applied Power Electronics Conf., Palm Springs, CA, Feb 21-25, 2010

101. “Investigation of SiC Power Module Requirement for Smart Grid Applications,” Y. Guo, PF Jao, G. Wang, Y. Du, S. Bhattacharya and D. C. Hopkins, 42th IMAPS Int’l Symp. on Microelectronics, San Jose, CA, November 1-5, 2009 *Best Paper of Session.*
Also, poster presentation at Advanced Energy Conf., Nov 18-19, 2009, Hauppauge, NY

102. “A 6.5kV IGBT Development Module for Renewable Energy Systems,” G. Wang, Y. Du, Y. Guo, D. C. Hopkins, S. Bhattacharya and A. Huang, 42th IMAPS Int’l Symp. on Microelectronics, San Jose, CA, November 1 - 5, 2009

103. “Advanced Packaging for Power and Energy,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 6 hrs)*, 42th IMAPS Int’l Symp. on Microelectronics, San Jose, CA, November 1-5, 2009

104. “Electromigration Time to Failure of SnAgCuNi Solder Joints,” Cemal Basaran, Shidong Li, Douglas C. Hopkins, and Damien Veychard, ASME InterPack 2009, San Francisco, CA, July 19-23, 2009

105. “Integrated Packaging Techniques,” Douglas C Hopkins, *S.15. Professional Education Seminar (competitively selected, 3 hrs)* IEEE Applied Power Electronics Conference, Washington, DC, February 15-19, 2009

106. “Low Temperature Electromigration and Thermomigration in Lead-Free Solder Joints,” M. Abdulhamid, D. C. Hopkins, C. Basaran, Int’l Electronics Packaging Symposium, Niskayuna, NY July 29 - 30, 2008

107. “Advanced Energy Packaging Techniques,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3 hrs)*, IEEE Applied Power Electronics Conference, Austin, TX, Feb 24-28, 2008

108. “Advanced Power Packaging for Higher Temperatures and Harsh Environments,” Douglas C Hopkins, 41st IMAPS Int’l Symp. on Microelectronics, 2008 *Professional Education Seminar (competitively selected, 6 hrs)*

109. “Stress Management in a High Temperature Multilayered Composite Structure,” D C Hopkins, D W Kellerman, Int’l High Temperature Electronics Conf. (HiTEC 2008), Albuquerque, New Mexico, May 12-15, 2008

110. “Solder Interconnect Electromigration Due to Time Varying Current Stressing,” K.E. Enser, D.C. Hopkins, C. Basaran, Proc. of the 40th IMAPS Int’l Symp. on Microelectronics, San Jose, CA, November 10 - 15, 2007,

111. "The effect of layer thickness variation on the thermo-mechanical properties of direct aluminum bonded substrates on AlSiC," T. McKay, D.C. Hopkins, C. Basaran, Proc. of the 40th IMAPS Int’l Symp. on Microelectronics, San Jose, CA, November 10 - 15, 2007

112. “Advanced Power Packaging for High Reliability and Higher Temperatures,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 6 hrs),* 40th IMAPS Int’l Symp. on Microelectronics, San Jose, CA, November 10 - 15, 2007

113. “Introduction to Power Packaging Techniques,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3 hrs),* IEEE Applied Power Electronics Conference, Anaheim. CA, 25 Feb – 01 Mar, 2007.

114. “Harsh Environment Thermal Management Using Aluminum-Based Packaging,” T. McKay, D.C. Hopkins, C. Basaran, M.F. Abdulhamid, International Electronics Packaging Symposium, Niskayuna, NY Jul 31 – Aug 01, 2007

115. “IMC Effects in Solder from High Thermal Gradients Management ,” M. F. Abdulhamid, D. C. Hopkins, C. Basaran, International Electronics Packaging Symposium, Niskayuna, NY Jul 31 – Aug 01, 2007

116. “A Review of Electromigration Under Time Varying Current Stressing,” Kevin E. Enser, Douglas C. Hopkins, Cemal Basaran, SAE Int’l Symposium, Toronto, Canada, April 19, 2007

117. “Aluminum-Based High-Temperature (>200°C) Packaging for SiC Power Converters,” D. C. Hopkins, D W. Kellerman, C. Basaran, J. Gomez, Proc. of the 39th IMAPS Int’l Symp. on Microelectronics, San Diego, CA, October 8-12, 2006, pp 734-741 *Nominated Best Paper of Conference*

118. “Aluminum-Based High-Temperature (>200°C) Packaging for SiC Power Converters,” D. C. Hopkins, D W. Kellerman, C. Basaran, J. Gomez, Int’l High Temperature Electronics Conf. (HiTEC 2006), Santa Fe, New Mexico, May 15-18, 2006, *invited speaker*

119. “Experimental Study of Thermomigration in Lead-Free Nanoelectronics Solder Joints,” Abdulhamid, Mohd F.; Basaran, Cemal; Hopkins, Douglas C., American Society of Mechanical Engineers, Electronic and Photonic Packaging, EPP, Proceedings of 2006 ASME International Mechanical Engineering Congress and Exposition, IMECE2006 - Electronic and Photonics Packaging, 2006, 5p

120. “High-Temperature, High-Density Packaging of a 60kW Converter for >200°C Embedded Operation,” D. C. Hopkins, R. A. Wunderlich, D. W. Kellerman, IEEE Int’l Applied Power Electronics Conference, New Orleans, LA, March 19–23, 2006.

121. "Advanced Power Electronics Packaging High-Current High Temperature Applications," Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3 hrs)*, IEEE Int'l Applied Power Electronics Conference, New Orleans, LA, March 19–23, 2006.

122. "Implementing Digital Power Control In Automotive Alternators," C. Thondapu, D. C. Hopkins, G. Holguin, Digital Power Forum 2005, Boston MA, September 12-14, 2005

123. "Modeling deformation in microelectronics BGA solder joints under high current density. Part I. Simulation and testing," Hua Ye, Cemal Basaran, Douglas C. Hopkins, Minghui Lin, Proc. 55th Electronic Components and Technology (IEEE Cat. No. 05CH37635), 2005, pt. 2, p 1437-44 Vol. 2

124. "Deformation of Solder Joints Under Current Stressing: Experimental Measurement and Numerical Simulation," Basaran, C., Ye, H. and Hopkins D., 21st International Congress of Theoretical and Applied Mechanics, August 15-21, 2004, Warsaw, Poland.

125. "Damage Mechanics of Microelectronics Solder Joints Under High Current Density," Ye, H., Basaran. C and Hopkins, D., Frear D., Jong-Kai Lin, The 54th Electronic Components and Technology Conf. June 1-4, 2004, Las Vegas, NV, v. 1, 2004. pp. 988-997.

126. "Power Packaging Techniques and High Current Applications," Douglas C. Hopkins, *Professional Education Seminar (competitively selected, 3 hrs),* IEEE Int'l Applied Power Electronics Conference, Anaheim, CA, 22-26 February 2004

127. "Pb Phase Growth in Eutectic Pb/Sn Flip Chip Solder Joint under Current Stressing", Ye, H., Basaran, C., and Hopkins, D.C., Proc. of 2003 Mechanics and Materials Conference, Scottsdale, AZ, June 17-20, 2003

128. "Power Packaging Techniques with Emphasis on High Current Applications," Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3 hrs),* IEEE Int'l Applied Power Electronics Conference, Miami, Beach, FL, 9-13 February 2003.

129. "Measuring Joint Reliability: Applying the Moire Interferometry Technique," Ye, H., Basaran, C., and Hopkins, D.C., Advanced Microelectronics Magazine, pp. 17-21,May 2003

130. "Mechanical Implications of High Current Densities In Flip Chip Solder Joints," H. Ye, C. Basaran, and D.C. Hopkins, Proc. of International Mechanical Engineering Congress and Exposition, New Orleans, LA, November 17, 2002

131. "Measurement and Effects of High Electrical Current Stress in Solder Joints," Ye, H., Hopkins, D.C., and Basaran, C., 35th Int'l Symposium on Microelectronics, Denver, Colorado, 04-06 September. 2002

132. "Measurement and Effects of High Current Stress in Solder Joints," H. Ye, D.C. Hopkins, C. Basaran, Proc. of the 35th IMAPS Int'l Symposium on Microelectronics, Denver, CO, pp. 427-432, 04-06 September 2002. *Best Student Paper-Honorable Mention.*

133. “Reliability of Solder Joints Under Electrical Stressing,” Ye, H., Basaran, C and Hopkins, D., 8th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, May 29 - June 1, 2002, San Diego, CA.

134. “Reliability of Solder Joints under Electrical Stressing -Strain evolution of Solder joints,” Ye, H., Basaran, C., Hopkins, D.C., and Cartwright, A., Proc. of the 8th Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, San Diego, CA, 29 May 2002

135. “Experimental Study on Reliability of Solder Joints under Electrical Stressing -Nano-indentation, Atomic Flux Measurement,” H. Ye, C. Basaran and D. Hopkins, IMAPS Int’l Conference on Advanced Packaging and Systems (ICAPS, SPIE vol. 4828), Reno, NA, pp. 231-6, March 10-13, 2002.

136. “Partitioning Digitally Programmable Power-Control for Applications to Ballasts,” D.C. Hopkins and J. Moronski, IEEE Int’l Applied Power Electronics Conference, Dallas, TX, March 11-14, 2002.

137. “Power Packaging Techniques for Low and Higher Voltage Systems,” Douglas C Hopkins, John S. Bowers, *Professional Education Seminar (competitively selected, 3 hrs)*, IEEE Int’l Applied Power Electronics Conference, Dallas, TX, March 11-14, 2002.

138. “Power Packaging Techniques” *Professional Education Seminar (competitively selected, 3 hrs),* 52nd Electronic Components and Technology Conference*, San Diego, CA, USA, 2002, doi: 10.1109/ECTC.2002.1008063.*

139. “Characterization of Advanced Materials for High Voltage / High Temperature Power Electronics Packaging,” D.C. Hopkins and J. S. Bowers, IEEE Int’l Applied Power Electronics Conference, Anaheim, CA, March 4-8, 2001, pp. 1062-1067.

140. “Power Packaging Techniques for Low and Higher Voltage Systems,” Douglas C Hopkins, John S. Bowers, *Professional Education Seminar (competitively selected, 3 hrs),* IEEE Int’l Applied Power Electronics Conference, Anaheim, CA, March 4-8, 2001, pp. 1062-1067.

141. “Packaging Factors for Next Generation High Voltage, High Temperature Power Electrons Modules,” J. S. Bowers, D.C. Hopkins and W. J. Sarjeant, High Temperature Electronics Conference, Albuquerque, NM, July 2000.

142. “Optimally Selecting Packaging Technologies and Circuit Partitions based on Cost and Performance,” J. B. Jacobsen and D. C. Hopkins, Applied Power Electronics Conference, New Orleans, LA, February 6-10, 2000. *Plenary Session Paper*

143. “Power Electronics Packaging,” Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3 hrs)*, IEEE Int’l Applied Power Electronics Conf., Dallas, TX, 14-18 March, 1999

144. "A Four - Dimensional Road-Mapping Framework for Power Packaging Technology," D. C. Hopkins, S. C. O'Mathuna, A. N. Alderman, Proc. of the 1998 IMAPS Int'l Symp. on Microelectronics, San Diego, CA, Nov. 1-4, 1998.

145. "A High Speed Pulser Thyristor," A. H. Craig, D. C. Hopkins and J. C. Driscoll, Proc. of the Int'l Applied Power Electronics Conference, Anaheim, CA, February 15-19, 1998.

146. "Power Packaging of a 12 kV, 240 °C, Passive Electronic Module," J. S. Bowers, D. C. Hopkins and W. J. Sarjeant, Proc. of the Int'l Applied Power Electronics Conference, Anaheim, CA, Feb. 15-19, 1998.

147. "A Framework for Developing Power Electronic Packaging," D. C. Hopkins, S. C. OMathuna, A. N. Alderman and J. Flannery, Proc. of the Int'l Applied Power Electronics Conference, Anaheim, CA, February 15-19, 1998; *Plenary Session*

148. "Thermal Impedance and Stress in a Power Package Due to Variations in Layer Thickness," D. C. Hopkins, J. M. Pitarressi and J. A. Karker, Proc. of the 1997 ISHM (IMAPS) Int'l Symp. on Microelectronics (SPIE vol. 3235, Philadelphia, PA, Oct. 12-16, 1997, p 72-77.

149. "Packaging Issues for next Generation High Voltage, High Temperature Power Electronics Modules," J. S. Bowers, D. C. Hopkins and W. J. Sarjeant, Proc. of the Int'l Applied Power Electronics Conf., Atlanta, GA, February 23-27, 1997.

150. "Power Electronics Packaging - A Circuit Design Approach," Douglas C Hopkins, *Professional Education Seminar (competitively selected, 3 hrs)*, IEEE Int'l Applied Power Electronics Conf., Atlanta, GA, February 23-27, 1997

151. "Power Electronics Packaging," D.C. Hopkins, Guest Editor, Advancing Microelectronics Magazine, published by Int'l Microelectronics and Packaging Soc., Reston, VA, Vol. 24, No.1, p. 10, January/February 1997.

152. "System Design Considerations for using a Direct–Attached–Ceramic MMC Power Package," D. C. Hopkins, J. M. Pitarressi, D. R. Fridline and J. A. Karker, Proc. of 32nd Int'l Power Conversion Conference, Nürnberg, Germany, pp. 683–690, May 21–23, 1996.

153. "Development of a Three Dimensional Power Circuit Package for Aircraft Applications," D. C. Hopkins, R. Revis, 1994 ISHM Int'l Symp. on Microelectronics, Boston, MA, pp. 124–128, November 15–17, 1994; awarded *Best Paper of Session*.

154. "A Mathematical Approach to Minimize the Total Mass of a Space Based Power System by Using Multivariate Nonlinear Optimization," D. C. Hopkins, M. Sarkar, 29th Intersociety Energy Conversion Engineering Conf., Monterey, CA, August 7–12, 1994.

155. “Synthesis of a New Class of Converters That Utilize Energy Recirculation,” D. C. Hopkins and D. W. Root, Proc. of the 1994 IEEE Power Electronics Specialists Conference, Taipei, Taiwan, pp. 1167–1172, June 20–24, 1994.

156. “Determining Conductor Thickness in Power Circuits that Operate at Long Wavelength Frequencies,” D. C. Hopkins and S. H. Bhavnani, Proc. of the 1993 ISHM Int’l Symp. on Microelectronics, Dallas, TX, pp. 656–661, November 9-11, 1993.

157. “Thermal Performance Comparison and Metallurgy of Direct Copper Bonded AlN, Al_2O_3 and BeO Assemblies,” D. C. Hopkins, S. H. Bhavnani and K. H. Dalal, Proc. of the 1992 ISHM Int’l Symp. on Microelectronics, San Francisco, CA, pp. 577-583, October 19-21, 1992; awarded *Best Paper of Session.*

158. “Numerical Modeling and Experimental Comparison of Copper Bonded AlN, Al_2O_3 and BeO Power Hybrid Structures,” D. C. Hopkins, S. H. Bhavnani and K. H. Dalal, Proc. of the 1992 Int’l Electronics Packaging Conf., Austin, TX, September 27-30, 1992.

159. “The Use of Equalizing Converters for Serial Charging of Long Battery Strings,” D. C. Hopkins, C. R. Mosling, S. T. Hung, IEEE Applied Power Electronics Conference, Dallas, Texas, March 10-15, 1991; *Invited Paper.*

160. “The Effects of Power Hybridization on Power Electronic Circuits,” D. C. Hopkins, ISHM Int'l Symposium on Microelectronics Proceedings, Baltimore, MD, pp. 647-654, October 1989.

161. “The Microelectronics Program at Auburn University,” R. W. Johnson, D.C. Hopkins and R. C. Jaeger, ISHM Int'l Symposium on Microelectronics Proceedings, Baltimore, MD, pp. 367-375, October 1989; *Best Paper of Session; top five Best of Symposium.*

162. “Power-Hybrid Design of a High-Frequency ZCS-QRC,” D.C. Hopkins, M. M. Jovanovic, F.C. Lee and F. W. Stephenson, Proc. of the Fourth Annual High Frequency Power Conversion Conference, Naples, FL, pp. 304-317, May 14-18, 1989.

163. “Plated Copper on Ceramic for Power Hybrid Applications,” R. Weeks, R. W. Johnson and D.C. Hopkins, 39th Electronic Components Conference, Houston, TX, USA, 1989, pp. 544-550, doi: 10.1109/ECC.1989.77803.

164. “Thick-Film Power Hybridization of Switchmode Power Circuits,” D, C, Hopkins, Proceedings of the IEEE Applied Power Electronics Conference, Baltimore, MD, pp. 249-255, March 13-17, 1989.

165. “Thick-Film Technique Helps Hybridized, 2 MHz ZC-QR Converter Achieve 78% Efficiency,” Power Conversion & Intelligent Motion, Vol. 15, No. 7, pp 57-66, July 1989.

166. “Designing Hybrid Power Supplies,” Powertechnics Magazine, Vol. 5, No. 6, pp. 31-34, June 1989.

167. "Printing of Thick Thick-Film Conductors for Power Hybrid Circuits," D.C. Hopkins, F.W. Stephenson and F.C. Lee, ISHM Int'l Symposium on Microelectronics Proceedings, Seattle, WA, pp. 95-101, October 1988; *Best Paper of Session*.

168. "Design Aspects for High-Frequency Off-Line Quasi-Resonant Converter," M. M. Jovanovic, D.C. Hopkins and F. C. Lee, Proceedings of the Second Annual High Frequency Power Conversion Conference (HFPC'87), Washington, D.C., pp. 83-97, April 1987.

169. "Two-Megahertz Off-Line Hybridized Quasi-Resonant Converter," D.C. Hopkins, M. M. Jovanovic, F.W. Stephenson and F.C. Lee, Proceedings of the IEEE Applied Power Electronics Conference, pp. 105-114, March 1987.

NON-REFEREED & REGIONAL PRESENTATIONS:

1. "Optimizing Parasitic Capacitance in Power Substrates to Lower Common Mode Interference," Douglas C Hopkins, Sourish Sinha, PCB Carolina, Raleigh NC, 08 November 2023 *(invited talk)*
2. "Requirements for a 3DHI Power Microsystem (3DHIP) and Manufacturing Center," Douglas C Hopkins, Tyndall Microelectronics Institute, Univ of Cork, Cork Ireland, 15 September 2023
3. "Development of Bi-Directional FETs, Modules and Circuits for Solar Converter Applications," Jayant Baliga, Subhashish Bhattacharya, Douglas C Hopkins, and Aditi Agarwal, Kijeong Han, Ajit Kanale, Tzu-Hsuan Cheng, Ramandeep Narwal, Isaac Wong, Sagar Rastogi, Suyash Shah, FREEDM Systems Center Annual Meeting, Raleigh, NC, 20-21 February 2023
4. "Industry Inflection Point: Organic Substrates Outperform Ceramic in Power Modules," Prof. Doug Hopkins, Sourish Sinha, Tzu-Hsuan Chang, PCB Carolina Exposition, NC State University McKimmon Conference Center, Raleigh NC, 09 November, 2022
5. "Module Design Using Advanced Power Packaging Technology for Near Term Commercialization," Douglas C Hopkins, PowerAmerica Virtual Wide Bandgap Summer Workshop, Raleigh, NC, Aug 3-5, 2021.
6. "A 40kV/mm Organic Substrate for Low Voltage Power SiP and >10kV Power Modules," Douglas C Hopkins and Wensong Yu, Utkarsh Mehrotra, Tzu-Hsuan Cheng, Sourish Sankar Sinha, Karan Maru, and Nicholas Mescia, *Professional Education Seminar (1.5 hrs),* FREEDM System Center Annual Research Symposium, Raleigh, NC, March 17-18, 2021
7. "Scalable Cascaded SuperCascode High Voltage Power Switch," Utkarsh Mehrotra and Douglas C. Hopkins, FREEDM System Center Annual Research Symposium, Raleigh, NC, March 17-18, 2021
8. "E-Field Reduction Techniques in HV Multi-layered Modules Using New Capacitive Modelling Method," Sourish S. Sinha and Douglas C Hopkins, FREEDM System Center Annual Research Symposium, Raleigh, NC, March 17-18, 2021

9. "Accessible & Adaptable Approach for Calculating the Thermal Resistance of a Power Package using ParaPower," Karan Maru and Douglas C Hopkins, FREEDM System Center Annual Research Symposium, Raleigh, NC, March 17-18, 2021
10. "Creating a Fast Turn Lab to Package Developmental Power Devices with a Packaging Example," Douglas C Hopkins, NC State Nanofabrication Facility (NNF), *Virtual Short Course Webinar (1 hr)* – Fabrication of Wide Bandgap Power Devices, Raleigh, NC, August 3-5, 2020
11. "Development of 3.3kV – capable, Low Cost Packaging Solution for SiC Transistor and Diode Development," Tzu-Hsuan Cheng, Utkarsh Mehrotra, Douglas C Hopkins, Power America Institute Annual Meeting, Raleigh, NC, February 25-27, 2020
12. "Traditional DBC-Based Power Modules for Test in Developing 3.3kV-15kV WBG Devices," Utkarsh Mehrotra, Adam Morgan, Douglas C Hopkins, Power America Institute Annual Meeting, Raleigh, NC, February 25-27, 2020
13. "Dynamic and Thermal IOL Test Systems for 3.3kV-6.5kV Die Development," Pranav Murthy, Utkarsh Mehrotra, Wensong Yu, Douglas C Hopkins, Power America Institute Annual Meeting, Raleigh, NC, February 25-27, 2020
14. "ParaPower – Leveraging Finite Difference Simulator for Quick Thermal Design," Sourish Sankar Sinha and Prof. Douglas C. Hopkins, *Professional Education Seminar* (1.5hrs, ~50 participants) FREEDM Systems Center & PREES Lab., NC State University, Jan. 24, 2020
15. "Advances in Organic Substrate Approaches for High Voltage Power Electronics Packaging," Tzu-Hsuan Cheng, and Dr Bo Gao, Dr Lauren Boteler, Douglas C Hopkins, Douglas C Hopkins, PCB Carolina, NC State University McKimmon Center, Raleigh, NC, 13 Nov 2019, *Invited Presentation*
16. "Opportunities in Power Applications using Epoxy Resin Composite Dielectrics," Bahji Ballard, Power America Summer Workshop 2019, Raleigh, NC, August 6-8, 2019
17. "WBG Solid State Circuit Protection using 10kV/200 A Super Cascode power module," Utkarsh Mehrotra, Power America Summer Workshop 2019, Raleigh, NC, August 6-8, 2019
18. "Development of a High Frequency LLC Resonant Converter for Investigation of MLCCs for EV applications," Musab Guven, Bo Gao, Douglas C Hopkins, Power America Summer Workshop, Raleigh, NC, August 6-8, 2019
19. "ERCD Power Stage Characterization for MV SSCB Application," Sourish S Sinha, Bahji Ballard, Douglas C Hopkins, Power America Summer Workshop, Raleigh, NC, August 6-8, 2019
20. "High Frequency Self-Oscillating WBG-based Power Conversion," Adam Morgan, Dr. Bo Gao, Dr. Douglas C. Hopkins, FREEDM Systems Center Annual Research Symposium, Raleigh, NC, April 10-12, 2019
21. "New Dynamic Power MOSFET Model to Determine Maximum Device Operating Frequency," Adam Morgan, Ajit Kanale, Kijeong Han, Jayant Baliga, Douglas C. Hopkins, FREEDM Systems Center Annual Research Symposium, Raleigh, NC, April 10-12, 2019

22. "Trends in Power Electronics Packaging," Douglas C. Hopkins, *Professional Education Seminar (1.5 hrs),* FREEDM Systems Center Annual Research Symposium, Raleigh, NC, April 10-12, 2019
23. "Bi–Directional Solid-State Circuit Breaker for MV Applications Based on SuperCascode Switching," Bahji Ballard, Utkarsh Mehrotra, Douglas C. Hopkins, Power America Annual Meeting February 12-14, 2019
24. "Introduction to WBG Module Packaging and Impact on Circuit Design," *Professional Education Seminar (4 hrs)* Douglas C Hopkins, PowerAmerica Wide Bandgap Devices and Applications Short Course, Raleigh, NC, Nov 13 - 15, 2018
25. "Self-Oscillating WBG-based VHF Power Conversion for FREEDM Applications," Adam Morgan, Dr. Douglas C. Hopkins, FREEDM Systems Center Annual Meeting, Raleigh, NC, June 7- 8, 2018
26. "Parasitic Integration for 500kHz ZVS DC-DC Converter Using New Polymer Material in IMS Module Musab Guven and Dr. Douglas C Hopkins, FREEDM Systems Center Annual Meeting, Raleigh, NC, June 7- 8, 2018
27. "Development of De-encapsulation Process for WBG Semiconductor Packaging Rework and Failure Analysis," Caitlin Golding and Dr. Douglas C. Hopkins, FREEDM Systems Center Annual Meeting, Raleigh, NC, June 7- 8, 2018
28. "Scalable MV/HV Super Cascode Power Module," Dr. Bo Gao, Adam Morgan, Dr. Douglas C. Hopkins, FREEDM Systems Center Annual Meeting, Raleigh, NC, June 7- 8, 2018
29. "Parasitic Integration for 500kHz ZVS DC-DC Converter Using New Polymer Material in IMS Module," Musab Guven and Dr. Douglas C Hopkins, FREEDM Systems Center Annual Meeting, Raleigh, NC, June 7- 8, 2018
30. "6.5kV, 100A, 175kHz Super Cascode Power Module (SCPM)," Bo Gao, Adam Morgan, Yang Xu, Xin Zhao, Douglas C. Hopkins, PowerAmerica Annual Meet., Raleigh, NC, Feb 6-8, 2018
31. "Comparing Power Packaging Through A Thermal Resistance Circle Based on Finite Element Analysis," Timothy Chen and Prof. Douglas C Hopkins, PowerAmerica Annual Meet., Raleigh, NC, Feb 6-8, 2018
32. "Heterogeneous Integration Roadmap Update-Integrated Power Electronics (IPE)," Int'l Symp. on 3D Power Electronics Integration and Manufacturing (3D-PEIM), College Park, MD, June 25-27, 2018
33. "3D Printing Power Supply in Package Power Supply on Chip versus Discrete Packaging," Douglas C Hopkins, Panel Discussion, IEEE Applied Power Electronics Conference, Tampa, FL, March 26-30 2017
34. Developed and presented a 1hr seminar on "Misconception of Thermal Spreading Angle and Misapplication to PCB & Power Modules," Douglas C Hopkins, PCB Carolina, NC State University McKimmon Center, Raleigh, NC 2017
35. "Grid Modernization – FREEDM Syst. Ctr.," ARMY invite to "Interagency Advanced Power Group-Elect Syst Working Grp" Jan10-12, 2017, Tallahassee, FL.

36. “Additive Manufacturing – 3D Printing of Electronic Energy Systems and Beyond,” D C Hopkins, RTP CFO (Corp Financial Officer) Forum, Mar 4, 2016.
37. “The Evolution and Future Development of Power Electronics as an Essential Element of Power Generation/Delivery, Energy Efficiency, and Industrial Automation,” R. Lawrence, D C Hopkins, Eastern North Carolina IEEE PELS Chapter Seminar, Raleigh, NC, Dec 12, 2015
38. “Physical Rf Circuit Techniques And The Implications On Future Power Module Design,” A. J. Morgan, D. C. Hopkins, M. McKeown, Int’l Microelectronics Assembly and Packaging Society (IMAPS) –NE Chapter Symposium, May 2015
39. “Additive Manufacturing (a.k.a. 3D Printing) for Designing Power Electronic Systems,” D. C. Hopkins, Manufacturing Conference 2015 (MFG Con), Raleigh, NC, Oct 20&21, 2015
40. “3D Printing in the Micro- & Power-Electronics Packaging World,” H Ke, A Morgan, R Aman, D C Hopkins, Douglas C Hopkins, PCB Carolina, NC State University McKimmon Center, Raleigh, NC, Nov 5, 2014
41. "Thermal-mechanical design and optimization for DBC based power modules", Yang Xu, Douglas C Hopkins, NSF FREEDM System Center Annual Meeting, Raleigh, NC, 2014.
42. “Sub-Microsecond Response SiC SSCB Module for an Aerospace Power Architecture,” D. C. Hopkins, FREEDM Systems Center Annual Meeting, Raleigh, NC, Apr 14 2011.
43. “Assessment of Critical Issues for High Temperature, High Voltage Power Modules,” D. C. Hopkins, Y. B. Guo, and P. F. Jao, FREEDM Systems Center Annual Meeting, Raleigh, NC, May 18 – 20, 2009
44. “Investigation of High Electrical Gradients in High Voltage Power Modules,” Y. B. Guo, P. F. Jao and D. C. Hopkins, FREEDM Systems Center Annual Meeting, Raleigh, NC, May 18-20, 2009
45. “Determination of Conductor Thickness and Width for Power-Hybrid Circuits,” D. C. Hopkins, F. W. Stephenson and F. C. Lee, Proc. of the Sixth Annual Power Electronics Seminar, Virginia Power Electronics Center, Blacksburg, VA, pp. 71-83 Sept. 26-28, 1988.
46. “Off-Line ZCS-QRC Thick-Film Hybrid Circuit,” D. C. Hopkins, F. W. Stephenson and F. C. Lee, Proc. of the Sixth Annual Power Electronics Seminar, Virginia Power Electronics Center, Blacksburg, VA, pp. 71-83 September 26-28, 1988.
47. “One-Megahertz, Off-Line Converter Hybridization,” D. C. Hopkins, M. M. Jovanovic, F. W. Stephenson and F. C. Lee, Proc. of the Fourth Annual Power Electronics Seminar, Virginia Power Electronics Center, Blacksburg, VA, pp. 134-148, November 4-5, 1986.
48. “Status of Power Devices, IC's and Support Chips,” D. C. Hopkins, Proc. of the Second Annual Power Electronics Seminar, Virginia Power Electronics Center, Blacksburg, VA, pp. 2-9, Sept. 13-14, 1984.
49. “Status of Semiconductor Power Switching Devices,” D. C. Hopkins, Proc. of the First Annual Power Electronics Seminar, Virginia Power Electronics Center, Blacksburg, VA, pp. 82-91, Oct. 12-13, 1983.

38+161+47 = 246 authored and co-authored articles and presentations; and 2 book chapters, and 2 patents.

RESEARCH REPORTS *(Listings suspended in 1996)*:

1. High Temperature Capacitors, final report to Custom Electronics Inc. April 1996, 21 p.

2. Investigation of a Power Package Incorporating a Direct Attached Ceramic/AlSiC Structure, final report for BrushWellman Incorporated, January 1996, 36 p (incl. Software).

3. Cost Estimate for the ARM Electronic Circuit Cards, final report for Lawrence Livermore National Laboratory, November, 1995, 180 p.

4. Assessment of the Power Conversion Thrust Area, final report for Lawrence Livermore National Laboratory, July 13, 1995, 10 p.

5. Systems Engineering of Shared Resources: Decision Support for the Concept Design Phase – Modeling Development, Interim Report for NASA Lewis Research Center, Dec. 1993, 80 p.

6. Systems Engineering of Shared Resources: Decision Support System for the Concept Definition Phases, NASA-OAI Collaborative Aerospace Research and Fellowship Program at Lewis Research Center, final report, pp- 25-26, 1993.

7. Investigation of High Frequency Resonant Effects in Batteries, Final Report for NASA Lewis Research Center, August 1993, 23 p.

8. High Density Shunt Regulator Development, Final report for Martin Marietta Corporation, December 1993, 50 p.

9. Materials Support for the Investigation of Charge Equalization in Serial Batteries, Final Report, NASA Contract No NAG8-123, December pp. VII-1 & VII-21, 1992.

10. Power Measurement in Converters - Final Report, for NASA Lewis Research Center, August 1992, 32 p.

11. Optimum Operating Temperature for a Minimum Mass Space Power System - Final Report, for NASA Lewis Research Center, August 1991, 30 p.

12. Current Limiting Remote Power Control Module - Final Report, D.C. Hopkins, for NASA Marshal Space Flight Center, NGT-01-002-009, September 1990, 24 p.

13. High Density Power Transformer, D.C. Hopkins, for Unisys Corporation, December 1989, 15 pages

14. Testing of High Power Devices - Final Report, for U.S. Army LABCOM-ETDL, DAAL03-86-D-001, DO 1576, September 1989.

15. High-Performance, High-Frequency, Distributed, Computer Power Supply Technology, with F.C. Lee, et al., for Digital Equipment Corporation, February 1987, 50 p.; February 1988, 60 pages; June 1989, 5 volumes.

16. Very High Frequency Quasi-Resonant Converters for Use in High Density Power Supplies for Military Applications, with F.C. Lee, et al., for Texas Instruments Inc, December 1985, 52 p.

17. Evaluation of Semiconductor Devices for Electric and Hybrid Vehicles (EHV) AC-Drive Applications, with F.C. Lee, et.al., for U.S. Department of Energy and Jet Propulsion Laboratory, publ. JPL9950-1038, May 1985, 50 p.

TECHNICAL AND SCIENTIFIC ADVISEMENT, & TUTORIAL* PRESENTATIONS:

(* Referred and competitively selected tutorials are included in the REFFERED PUBLICATIONS section.)

2020

NC State Nanofabrication Facility (NNF) Virtual Short Course– Fabrication of Wide Bandgap Power Devices, (1 hr. Webinar) "Creating a Fast Turn Lab to Package Developmental Power Devices with a Packaging Example," Douglas C Hopkins, Raleigh, NC, August 3-5, 2020

2018

Int'l Symp. on 3D Power Electronics Integration and Manufacturing (3D-PEIM), "Systems Integration – Integrating Power Electronics," *(1.5 hrs. Tutorial)* Douglas C Hopkins, College Park, MD, June 25-27, 2018

2017

Member of Panel on Materials Science and Engineering at the Army Research Laboratory
The National Academies of Sciences, Engineering, Medicine: Division on Engineering and Physical Sciences, Army Research Laboratory Technical Assessment Board

2016

Int'l Symp. on 3D Power Electronics Integration and Manufacturing, "The World of Packaging Technologies and the Critical Issues - 3D Power Electronics & Additive Manufacturing," (1.5 hrs. Tutorial), Raleigh NC, June 13-15, 2016

2014

"3D Printing in the Micro- & Power - Electronics Packaging World," By the RTP Chapter of the IPC Designer's Council, Raleigh, NC, Nov 05, 2014 *Invited*

2011

DOE Vehicle Technologies Program FY11 Kickoff Meeting for Advanced Power Electronics and Electric Motors R&D, program review, invitation only, ORNL Nov 2-4, 2011

2010

Electronic Design Magazine, Webinar, "The Smart Grid – Session I," Penton Media, Inc., Cleveland, OH, Apr 27, 2010 (1hr., invited talk)
Advanced Energy Conference 2010, "Power Electronics for the Smart Grid," panel discussion, New York, NY, Nov. 8-9, 2010
DOE Vehicle Technologies Program FY11 Kickoff Meeting for Advanced Power Electronics and Electric Motors R&D, program review, invitation only, ORNL Nov 16-18, 2010

2009

IMAPS Int'l Symp. on Microelectronics, San Jose, CA, November 1-5, 2009, "Alternative Energy - Alternative Solutions," Presentation & Panel Discussion
ORNL Invited Talk on Advanced Power Electronics Packaging & Packaging Program Development, Laura Marlino, Knoxville, TN
NSF FREEDM Systems Center Webinar Series, Raleigh, NC, Dr. Alex Huang; Seminar, High Voltage and High Temperature Packaging of SiC Power Devices
ONR/EPRI/AEP Faculty Workshop on 'First Course on Power Electronics', Corvallis, OR, Dr. Ned Mohan; Topic Leader and presentation - Power Factor Correction
Army Research Laboratory, Adelphi, MD, Dr. Ed Shaffer (Civ, ARL/SEDD); Presentation, Harsh Environment Packaging
DOE Vehicle Technologies Program FY10 Kickoff Meeting for Advanced Power Electronics and Electric Machines, program review, invitation only, ORNL Oct. 27–29, 2009

2008

Oak Ridge National Laboratories, Knoxville, TN, Laura Marlino; Presentation; Advanced Power Packaging.
USCAR, Detroit, MI, Presentation, Advancements in Power and Energy Packaging
Delta Energy Systems, Tucson, AZ, Dan Jitaru, Presentation, Very High Density Packaging and Advanced Thermal Management

[2007-1997 *Other Continuing/Invited/Professional Education Courses*]

Spring 2007 "ABC of Power Electronic Systems" (1 hrs.)
Rochester Engineering Symposium, 2007
Fall 2006 "Effective Communications – A Changing World" (1 hrs.)
IEEE Region-1 Training Workshop, 2006
Fall 2002 "Power Electronics Systems – The ABCs" (3 CEUs)
IEEE WESCON 2002
Fall 2001 "Power Electronic Systems – The ABCs" (3 CEUs)
IEEE WESCON 2001
Fall 2001 "Understanding Power Electronics Packaging" (3 CEUs)
IEEE WESCON 2001
Spring 2000 "Power Electronics Packaging – A Systems Approach" (3 hrs.)
IEEE International Workshop on Integrated Power Packaging (IWIPP'00)
Fall 1998 "Power Packaging - A Systems Perspective" (2 hrs.)
International Workshop on Integrated Power Packaging (IWIPP'98)

Also [*Consulting*]

2009 – 14 Emerson Motor Company, St. Louis, MO
2008 – 08 Renewable Energy Development Inc., Oneonta, NY

2006 – 07 Emerson Climate Technologies, Sidney. OH
2005 – 05 Eaton Aerospace, Grand Rapids, Michigan
2005 – 09 Kevin Kennedy & Associates, Indianapolis, Indiana
2004 – 04 Yazaki North America, Canton, Michigan
2003 – 03 Ridge Tool Company, Elyria, OH
2003 – 04 Astec Power Andover, MA
2002 – 03 Celestica Power, Milwaukie, OR
2002 – 03 Precision Magnetic Bearings, Albany, New York
2002 – … Emerson Motor Company, Columbus, Ohio
2002 – 02 Emerson Energy Systems, Montreal, Canada
2001 – … Emerson Design Center, Columbus, Ohio
2000 – 02 Verizon Corp., Boston, MA
2000 – 01 SYSTEL, Inc., Israel
1998 – 00 Grundfos A/S, Bjerringbro, Denmark
1998 – 00 JRS Technology Incorporated, Endicott, New York
1996 – 06 Custom Electronics Incorporated, Oneonta, New York
1995 – 00 Varity Zecal Incorporated, Churchville, New York
1995 – 99 BrushWellman Incorporated, Tucson, Arizona
1992 – 97 Power Technology Services, Raleigh, North Carolina
1992 – 92 Marconi Circuits Technology, Farmingdale, New York
1991 – 93 BrushWellman Inc., Cleveland, Ohio
1989 – 93 Power Tech, Fair Lawn, New Jersey
1991 – 91 Micon Engineering, College Station, Texas
1988 – 89 Digital Equipment Corp., Burlington, Vermont

SCIENTIFIC AND PROFESSIONAL SOCIETY MEMBERSHIPS AND ACTIVITIES:

Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
(largest international technical society)

IEEE Power Electronics Society
Member, Technical Committee on Power Components, Integration, and Power ICs (TC2) 2018 -
Member, Technical Committee on Emerging Power Electronic Technologies (TC-6) 2018 -

IEEE Eastern North Carolina Section
Section Chairman 2017
Co-Founder and PELS Chapter Chairman – 2012-2015
PELS Chapter Sect. & Treas. 2016 –

IEEE Buffalo Section
Awards Committee Chairman – 2009-2011
Audit Committee Chairman – 2008

IEEE Electronics Packaging Society (EPS)
(2018 Formerly Components, Packaging and Manufacturing. Technology Soc. (CPMT))
Chair Power & Energy Technical Committee, 2023 –

Co-Chair Integrated Power Electronics (IPE) Technical Working Group (TWG) for the IEEE-EPS "Heterogeneous Integration Roadmap" (HIR) 2020 –
Member, Board of Governors, IEEE CPMT, 2005-2011
Founder and Chairman, IEEE CPMT, Power Electronics Packaging Tech Comm, 1995 - 2011

Member, AdCom, IEEE Power Electrons Soc.
Standards Committee Liaison to the Power Source Mfgr. Assoc.
Founder and Chairman, IEEE PELS, Power Electronics Packaging Tech Comm, 1994 - 2011

IEEE Region-I Regional Activities Board
Region-I Western Area Chairman 2004 - 2007
Region-I Executive Committee Member 2004- 2007

IEEE Binghamton Section
Section Chairman – 2008
Power Engineering Soc. Chapter Chairman 2005 – present
Section Treasurer 2003 – 2005
Comp., Pkg. and Mfgr. Tech. Soc. Chapter Treasurer 2002
Power Engineering Society Chapter Treasurer 2002 – 2004
Newsletter Editor, IEEE Binghamton Section 2001 – 2006
Section Representative to region, 2001
Chairman, IEEE Binghamton Section 1998 - 2000
Vice Chairman, IEEE Binghamton Section 1995 - 1997
Membership Chairman, IEEE Binghamton Section 1994

International Microelectronics and Packaging Society (IMAPS)
(Second largest international electronics packaging society)

Founder IMAPS "Advanced Power Electronics Packaging Symposium" (APEPS)
General Chair for APEPS 2020 – Cancelled
General Chair foe APEPS 2021 – Virtual, April 26-29, 2021
Executive Council (BOD) 2019 – present (two-year term)
Fellow - November 2007
Chairman, IMAPS Power Packaging Technical Committee, 1997 - 2015
Co-Founder & Member, IMAPS Power Packaging Technical Committee, 1993 – Present
Founding Advisor, UB Student Chapter of the International Microelectronics and Packaging Society (IMAPS), 2003- 2011

Power Sources Manufactures Association (PSMA)

Member, Advisory Board, Power Sources Manufactures Association (PSMA), 2008 – present
Member, Board of Directors, Power Sources Manufacturers Association (PSMA), 1995 – 1998

Member of oversight committee; commissioned study on "PSiP2PSoC - Power Supply on Chip to Power Supply in Package" March 2007 - present. Phase-I budgeted study $80,000
Member Energy Efficiency Committee, 2005- 2016
Founder and Chairman, Power Electronics Packaging Technical Committee, 1994 – 2005
Member Power Electronics Packaging Technical Committee, 2005- present
Member Power Electronics Technology Road Map working committee, 2003
Chairman – Scripting Committee for the 2002 Workshop on Silicon Integration
Committee founder - commissioned study on "Status of Power Electronics Packaging," 1999-2000; Budgeted study $50,000

Member, Sigma Xi

Member, Eta Kappa Nu

Journal Associate Editor
IEEE Journal of Emerging and Selected Topics in Power Electronics-JESTPE

Journal Reviewer–

ASME Journal of Electronics Packaging
IEEE Transactions on Aerospace and Electronic Systems;
IEEE Transactions on Advanced Packaging
IEEE Transactions on Components and Packaging Technologies
IEEE Transactions on Industrial Electronics;
IEEE Transactions on Power Electronics;
IET (IEE) Journal on Circuits and Systems; (Inst. of Eng. and Tech. formerly IEE)

Books Reviewed:

Wiley Encyclopedia of Electrical and Electronics Engineering, "Electron Devices-Thyristor", ed. J. G. Webster, John Wiley and Sons, Inc. 1998.

Power Electronics and Motor Drives, K. R. Ramu, McGraw Hill, 1990.

Design of Sold-State Power Supplies, 3rd ed., E. R. Hnatek, VanNostrand Reinhold, 1989, published 1990.

Electronic Circuits and Applications, ---, VanNostrand Reinhold, 1985, not published.

Standards Reviewer:

IEEE P1515, Draft 1.0 *Electronics Power Subsystems: Parameter Definitions, Test Conditions and Test Methods,* May 1999.
SAE Committee AE-7 *Aerospace Electrical Power & Equipment Technical Committee*, 2007-present

CONFERENCE AND SYMPOSIUM RESPONSIBILITIES:

Session Co-Chair, IEEE Applied Power Electronics Conference, Orlando, FL 19-23 Mar, 2023

Member, Steering & Technical committees IEEE/PSMA Int'l Symposium on 3D Power Electronics Integration and Manufacturing (3D-PEIM), Florida Int'l Univeristy, 01-03 February 2023

Session Co-Organizer and Co-Chair, Int'l Microelectronics Conference, Boston, MA, 03-06 October 2022

FOUNDER & General Chair for IMAPS Advanced Power Electronics Packaging Symposium (APEPS) – Virtual, April 26-29, 2021

FOUNDER & General Chair for IMAPS Advanced Power Electronics Packaging Symposium (APEPS) – Cancelled

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Anaheim, CA, March 17-21, 2019

FOUNDER & Publications Chairman, IEEE/PSMA Int'l Symposium on 3D Power Electronics Integration and Manufacturing (3D-PEIM), College Park, MD June 25-27, 2018

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Tampa, FL, March 26-30, 2018

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Tampa, FL, March 26-30, 2017

Technical Program Committee, Session Co-organizer, Session Chairman: IMAPS 49th International Symposium on Microelectronics, Pasadena, CA, October 10-13, 2016

FOUNDER and General Chairman, IEEE/IMAPS/PSMA 1st Int'l Symposium on 3D Power Electronics Integration and Manufacturing (3D-PEIM), Raleigh, NC, June 13-15, 2016

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Long Beach, CA, March 20-24, 2016

Technical Program Committee, Session Co-organizer, Session Chairman: IMAPS 48th International Symposium on Microelectronics, Orlando, FL, October 26-29, 2015

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Charlotte, NC March 15-19, 2015

Technical Program Committee, Session Co-organizer, Session Chairman: IMAPS 47th International Symposium on Microelectronics, San Diego, CA, October 13-16, 2014

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Fort Worth, TX March 16-20, 2014

Technical Program Committee, Session Co-organizer, Session Chairman: IMAPS 46th International Symposium on Microelectronics, Orlando, FL, Sept 30-Oct 3, 2013

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Long Beach, CA March 17-21, 2013

Technical Program Committee, Session Co-organizer, Session Chairman: IMAPS 45th International Symposium on Microelectronics, San Diego, CA, September 9-13, 2012

Program committee and Session Organizer, 2012 International Workshop on Power Supply on Chip (PwrSoC), San Francisco, CA, 16 Nov - 18 Nov 2012

Member at Large, IEEE Applied Power Electronics Conference Committee, Jan 2011 - present

Track Co-Chair and Organizer, and Session Co-Chair, IEEE Applied Power Electronics Conf., Orlando, FL, Feb 5-9, 2012

Technical Program Committee, Session Co-organizer, Session Chairman: IMAPS 44th International Symposium on Microelectronics, Long Beach, CA, October 9-13, 2011

Session Organizer (2), Special Session on "Packaging Challenges with More Electric Vehicles," and "Si and SiC Devices & Applications," IEEE Applied Power Electronics Conf., Ft. Worth, TX, Mar 6-10, 2011

Session Chair, "Si and SiC Devices & Applications," IEEE Applied Power Electronics Conf., Ft. Worth, TX, Mar 6-10, 2011

Session Organizer, "Power Electronics for the Smart Grid," Advanced Energy Conf., New York, NY, November 8-9, 2010

Technical Program Committee, Session Co-organizer, Session Chairman: IMAPS 43rd International Symposium on Microelectronics, Raleigh, NC, October 31 - November 4, 2010

Member, Technical Program Committee: IEEE Int'l Sym on Power Electronics for Distributed Generation Systems (PEDG2010) June 16 - June 18, 2010 in Hefei, China

Member, Program Committee: IEEE Applied Power Electronics Conference, Palm Springs, CA, Feb. 21-25, 2010.

Member, Technical Program Committee: 2nd Int'l. Sym. on Power Electronics for Distributed Generation Systems (PEDG2010), Hefei, June 16-18, 2010

General Chair, W. NY Regional IMAPS Symposium, Fall 2009

Session Co-organizer, Session Chairman: IMAPS International Symposium on Microelectronics, San Jose, CA November 1- 5, 2009

Session Co-organizer, Session Chairman: IMAPS International Symposium on Microelectronics, Providence, RI, November 2-6, 2008

Session Co-organizer, Session Chairman: (two sessions) IMAPS International Symposium on Microelectronics, San Jose, CA, November 11-15, 2007.

Co-Chairperson, Workshop on Power Electronics Packaging, Buffalo, NY, May 17, 2007

Member, Program Committee, Session Chairman: IEEE Applied Power Electronics Conference, Anaheim, CA, February 25 – March 1, 2007.

Technical Program Co-Chairman: IEEE Southern Tier Technology Symposium, Vestal, NY, October 28, 2006

Member, Program Committee: Advanced Technology Workshop on Packaging & Assembly of Power LEDs Palo Alto, CA, Sept 13-15, 2006

Session Co-organizer, Session Chairman: IMAPS International Symposium on Microelectronics, San Diego, CA, October 8-12, 2006.

Member, Program Committee: Advanced Technology Workshop on Packaging & Assembly of Power LEDs Palo Alto, CA, September 13-15, 2006

Member, Program Committee: IEEE Applied Power Electronics Conference, Dallas, TX, February 19-23, 2006.

Session Organizer, Session Chairman: IMAPS International Symposium on Microelectronics, Philadelphia PA, September 25-29, 2005

Member, Program Committee: IEEE Applied Power Electronics Conference, Austin, TX, March 6-10, 2005.

Member, Program Committee: IEEE Applied Power Electronics Conference, Anaheim, CA, February 22-26, 2004.

General Chairman: 3rd International Workshop on Integrated Power Packaging, Las Vagas, Nevada, June 1, 2004 (in planning)

Session organizer: IMAPS International Symposium on Microelectronics, Boston, MA, November 16-20, 2003

Topics Chairman and organizer: Power Modules Session and Passive Power Components Session, IEEE – Power Electronics Specialist Conf., Acapulco, Mexico, June 15-19, 2003

Organizer and Moderator: "Engineering Forum – Who is Supplying the Electricity," IEEE Binghamton Section, December 08, 2002 (public forum, 80 attendees)

Member, Program Committee, Session Chairman: IEEE Applied Power Electronics Conference, Miami Beach, FL, February 8-13, 2003.

Session Organizer: IEEE Electronics Components and Technology Conference, San Diego, California, May 28 - 31, 2002.

Member, Program Committee, Session Chairman: IEEE Applied Power Electronics Conference, Dallas, TX, March 11-14, 2002.

Session Co-organizer, Session Chairman: IMAPS International Symposium on Microelectronics, Baltimore, MD, October 9-11, 2001.

Technical Program Reviewer: IEEE Power Electronics Specialist Conference, Vancouver, Canada, June 17-21, 2001.

Member, Program Committee: IEEE Applied Power Electronics Conference, Anaheim, CA, March 4-8, 2001.

Technical Program Chairman: International Workshop on Integrated Power Packaging, Waltham, MA, July 14-15, 2000

Session Organizer, Chairman: IMAPS International Symposium on Microelectronics, Boston, MA, 2000.

Member, Program Committee: IEEE Applied Power Electronics Conference, New Orleans, LA, February 6-10, 2000.

Session Organizer: IMAPS International Symposium on Microelectronics, Chicago, IL, October, 26-28, 1999.

Member, Program Committee: IEEE Applied Power Electronics Conference, Dallas, TX, March 14-16, 1999.

Session Organizer: IMAPS International Symposium on Microelectronics, San Diego, CA, November 1-4, 1998.

Co-Founder and Technical Program Chairman, International Workshop on Integrated Power Packaging, Chicago, IL, September 17-19, 1998

Technical Program Reviewer: IEEE Power Electronics Specialist Conference, Fukuoka, Japan, May 17-22, 1998.

Member, Program Committee: IEEE Applied Power Electronics Conference, Anaheim, CA February 15-19, 1998.

Session Organizer: ISHM International Symposium on Microelectronics, Philadelphia, PA, October 14-16, 1997.

Topic Chair and Session Organizer: IEEE Power Electronics Specialist Conference, St. Louis, MO, June 22-27, 1997.

Session Chairman; Member, Program Committee: IEEE Applied Power Electronics Conference, Atlanta, GA, February 23-27, 1997.

Session Organizer: ISHM International Symposium on Microelectronics, Minneapolis, MN, October 8-10, 1996.

Member, Program Committee: IEEE Applied Power Electronics Conference, San Jose, March 3-7, 1996.

Session Organizer: ISHM International Symposium on Microelectronics, Los Angeles, CA, October 24-26,1995.

Member, Program Committee: IEEE Applied Power Electronics Conference, Dallas, TX, March 5-9, 1995.

Session Organizer: ISHM International Symposium on Microelectronics, Boston, MA, November 15-17, 1994.

Session Organizer – American Institute of Aeronautics and Astronauts - Intersociety Energy Conversion Engineering Conference, August 26, 1994.

Member, Technical Program Committee: IEEE Power Electronics Specialist Conference, Taipei, Taiwan R.O.C., June 20-25, 1994.

Member, Program Committee: IEEE Applied Power Electronics Conference, Orlando, FL, February 13-17, 1994.

Member, Review Committee: IEEE Workshop on Power Electronics in Transportation," Dearborn MI, 1994.

Session Chairman: ISHM International Symposium on Microelectronics, Dallas, TX, November 9-11, 1993.

Member, Technical Program Committee: IEEE Power Electronics Specialist Conference, Seattle, WA, June 20-24, 1993.

Member, Program Committee: IEEE Applied Power Electronics Conference, San Diego, CA, March 7-11, 1993.

Session Organizer: ISHM International Symposium on Microelectronics, San Francisco, CA, October 19-21, 1992

Member, Review Committee: IEEE International Symposium on Industrial Electronics, Xian, China, May 25-27, 1992.

Session Chairman; Member, Program Committee: IEEE Applied Power Electronics Conference, Boston, MA, February 23-27, 1992.

Session Chairman; Member, Program Committee: IEEE Applied Power Electronics Conference, Dallas, TX, March 10-15, 1991.

Co-Chairman, Organizing Committee: IEEE-PES North American Power Symposium, Auburn, AL, October 15-16, 1990.

Session Chairman; Member, Program Committee: IEEE Applied Power Electronics Conference, Los Angeles, CA, March 11-16, 1990.

Session Chairman: ISHM International Symposium on Microelectronics, Baltimore, MD, October 24-26, 1989.

Session Chairman; Member, Technical Program Committee: IEEE Power Electronics Specialist Conference, Milwaukee, WI, June 26-28, 1989.

Member, Program Committee: IEEE Applied Power Electronics Conference, Baltimore, MD, March 13-17, 1989.

TEACHING

(chronological)

COURSES DEVELOPED AND TAUGHT:

Bold italics are courses developed, 500 level and higher are graduate courses, for dual listed courses separate performance criteria are used.

Quarter	Course (Cr-Hrs)	Enrollment:
NC State University		
Spring 2023	ECE-533 Power Electronics Design & Packaging	29
	ECE-895 Doctoral Dissertation Research	2

Fall 2022	ECE-895 Doctoral Dissertation Research	3
Spring 2022	ECE-533 Power Electronics Design & Packaging	25
	ECE-895 Doctoral Dissertation Research	3
Fall 2021	ECE-693/5 Master's Thesis Research 2	
	ECE-895 Doctoral Dissertation Research 3	
Spring 2021	ECE-533 Power Electronics Design & Packaging	19
	ECE-693/5 Master's Thesis Research 2	
	ECE-895 Doctoral Dissertation Research 3	
Fall 2020	ECE-693/5 Master's Thesis Research 2	
	ECE-895 Doctoral Dissertation Research 3	
Spring 2020	ECE-693/5 Master's Thesis Research 2	
	ECE-895 Doctoral Dissertation Research 4	
Fall 2019	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research 4	
Spring 2019	ECE-533 Power Electronics Design & Packaging	20
	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research 4	
Fall 2018	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research 5	
Spring 2018	ECE-533 Power Electronics Design & Packaging	11
	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research 5	
Fall 2017	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research 5	
Spring 2017	**ECE-592 Power Electronics Design & Packaging**	12
	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research 5	
Fall 2016	ECE-695 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research 6	

Spring 2016	ECE-792 Electronic Energy Packaging	10
	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research6	
Fall 2015	ECE-693/5 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research6	
Spring 2015	ECE-792-018 Electronic Energy Packaging	8
	ECE-695 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research4	
Fall 2014	ECE-693 Master's Supervised Research 1	
	ECE-695 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research4	
Spring 2014	ECE-792-018 Electronic Energy Packaging	6
	ECE-695 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research2	
Fall 2013	ECE-792-023 Electronic Energy Packaging	8
	ECE-693 Master's Supervised Research 1	
	ECE-695 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research2	
Spring 2013	**ECE-792-018 Electronic Energy Packaging**	6
	ECE-695 Master's Thesis Research 1	
	ECE-895 Doctoral Dissertation Research2	

University at Buffalo

Spring 2011	EE-540 Power Electronics in the Smart Grid (Co-taught with Prof Safiuddin)	32
	EE-200 EE Concepts for Non-Majors	140
	EE-353 Electronic Circuits 84	
	EE-598 Individual Problems 2	
	EE-599 Master's Research 2	
	EE-699 Dissertation 1	
Fall 2010	EE-598 Wind Energy Essentials* (* On-line from N. Mohan, Univ of Minnesota, funded thru a grant from DensePower, LLC)	16
	EE-598 Individual Problems 3	
	EE-599 Master's Research 2	

Spring 2010	EE-467 Integrated Power Electronics*	2
	EE-567 Integrated Power Electronics*	24
	(* taught without monetary compensation)	
Fall 2009	*EE-540 Static Power Conversion**	cancelled
	*(*Relabeled **Power Electronics for Smart Grid**)*	(lack of funding)
Spring 2009	EE-494 Senior Capstone Design	10
	EE-467 Integrated Power Electronics	***4***
	EE-567 Integrated Power Electronics	***13***
	EE-598 Individual Problems	1
Fall 2008	EE-494 Senior Capstone Design	15
	EE-599 Master's Research	1
Summer 2008	EE-496 Co-Op	8
Spring 2008	EE-494 Senior Capstone Design	4
	EE-499 Independent Study	1
	EE-540 Static Power Conversion	***15***
	EE-598 Individual Problems	1
	EE-599 Master's Research	2
Fall 2007	EE-410 Instrument Design	24
	EE-494 Senior Capstone Design	21
	EE-510 Instrumentation Design, Measurement	11
	EE-599 Master's Research	2
	EE-699 Dissertation	1
Summer 2007	EE-496 Co-Op	6
Spring 2007	EE-494 Senior Capstone Design	18
	EE-499 Independent Study	1
	EE-598 Individual Problems	1
	EE-599 Master's Research	3
	EE-699 Dissertation	1
Fall 2006	EE-410 Instrument Design	36
	EE-494 Senior Capstone Design	***12***
	EE-510 Instrumentation Design, Measurement	*6*
	EE-599 Master's Research	2
Summer 2006	EE-438 Internship	7
	EAS-495 Engineering Career Institute	4
	EE-599 Master's Research	18

Spring 2006	EE-402 Senior Design	27
	EE-499 Independent Study	3
	EE-599 Master's Research	1
Fall 2005	EE-402 Senior Design	35
	EE-410 Instrument Design	27
	EE-510 Instrument Design	8
	EE-540Y Static Power Conversion	26
	EE-599 Master's Research	2
Summer 2005	EAS-495 Engineering Career Institute	4
	EE-599 Master's Research	17
Spring 2005	EE-402 Senior Design	27
	EE-499 Independent Study	3
	EE-599 Master's Research	3
Fall 2004	EE-402 Senior Design	35
Summer 2004	EAS-495 Engineering Career Institute	4
Spring 2004	EE-402 Senior Design	17
	EE-582z Power Engineering I	25
Fall 2003	EE-402 Senior Design	10
Summer 2003	EAS-495 Engineering Career Institute	5
Spring 2003	EE-437 Co-operative Education	1
	EE-499 Independent Study	2
Fall 2002	EAS-436 Co-operative Education	1
	EE-499 Independent Study	1
Summer 2002	EAS-495 Engineering Career Institute	2
Spring 2002	EE-203 Electric Circuits II	120
	EE-436 Co-operative Education	1
Fall 2001	EAS-436 Co-operative Education	2
Summer 2001	EAS-495 Engineering Career Institute	8
Spring 2001	EE-203 Electric Circuits II	117

Binghamton University

Spring 1998 (25% teaching, 75% research)
WTSN-292 Electrical Phenomena-Part III (2)80
EE-386 Engineering Practice II (3) 31
EE-599 Research and Thesis (X) 2

Fall 1997 (25% teaching, 75% research)
EE-340 Sig. & Sys for ME (3) 38
EE-419 Power Electronics (3) 13
EE-520 Power Electronics (3) 4
EE-597 Special Topic (3) 1
EE-599 Research and Thesis (X) 2
EE-699 Special Topic (1) 1
EE-701 Research and Dissertation (3) 1

Spring 1997 (50% teaching, 50% research)
EE-332 Semiconductor Devices (3) 34
EE-386 Engineering Practice II (3) 35
EE-599 Research and Thesis (X) 4

Fall 1996 (50% teaching, 50% research)
EE-340 Sig. & Sys for ME (3) 28
EE-419 Power Electronics (3) 10
EE-520 Power Electronics (3) 10
EE-599 Research and Thesis (X) 4

Spring 1996 (50% teaching, 50% research)
EE-417 Adv. Elect. (Pwr. Elect.) (3) 11
EE-415 Adv. Elect. (Pwr. Elect.) Lab (1) 11
EE-520 Adv. Elect. (Pwr. Elect.) (4) 4
EE-599 Research and Thesis (X) 4

Fall 1995 (50% teaching, 50% research)
EE-311 Electronics I (4) 40
EE-340 Signals and systems 45
EE-599 Research and Thesis (3) 4

Spring 1995 (50% teaching, 50% research)
EE-382 Technical Communications (1) 30
EE-417 Adv. Elect. (Pwr. Elect.) (3) 11
EE-415 Adv. Elect. (Pwr. Elect.) Lab (1) 7
EE-499 Undergrad Research (2) 1
EE-520 Adv. Elect. (Pwr. Elect.) (4) 5
EE-599 Research and Thesis (X) 3

Fall 1994 (50% teaching, 50% research)
EE-311 Electronics I (4) 35
EE-599 Research and Thesis (3) 1

Spring 1994 (50% teaching, 50% research)
EE-417 Adv. Elect. (Pwr. Elect.) (3) 7
EE-415 Adv. Elect. (Pwr. Elect.) Lab (1) 7
EE-520 Adv. Elect. (Pwr. Elect.) (4) 13
EE-599 Research and Thesis (3) 1

Auburn University

Spring 1992 (47% teaching, 53% research)
EE-582 Appl. and Design of Pwr. Elect. (3) 3
EE-682 Power Electronic Systems (3) 4
EE-499 Special Projects (3) 4
EE-699 Research and Thesis (6) 1

Winter 1991 (47% teaching, 53% research)
EE-374 Electronics II (4) 22
EE-401 Senior Design Projects (3) 12
EE-692 Directed Reading (1) 1
EE-699 Research and Thesis (3) 1

Fall 1991 (47% teaching, 53% research)
EE-475 Electronics III (5)30
EE-401 Senior Design (3) 13
EE-699 Research and Thesis (3) 2

Summer 1991 EE-499 Special Topics (3) 1
EE-699 Research and Thesis (3) 1

Spring 1991 (47% teaching, 53% research)
EE-374 Electronics II (4) 30
EE-402 Senior Design (3) 12
EE-499 Special Projects (3) 4
EE-699 Research and Thesis (6) 1

Winter 1990 (2/3 teaching, 1/3 research)
EE-374 Electronics II (4) 28
EE-590 Pwr. Semicond. Devices (3) 1
EE-690 Pwr. Semicond. Devices (3) 11
EE-497 Design Projects (2) 1
EE-499 Special Projects (2) 1
EE-692 Directed Reading (5) 1

Fall 1990 (47% teaching, 53% research)
EE-374 Electronics II (4) 22
EE-582 Appl. and Design of Pwr. Elect. (3) 3
EE-682 Power Electronic Systems (3) 4
EE-692 Directed Reading (1) 1

Summer 1990 EE-499 Special Topics (4) 1
EE-692 Directed Reading (5) 2

Spring 1990 (2/3 teaching, 1/3 research)
EE-371 Electronics I (3) 40
EE-497 Design Projects (2) 2
EE-499 Special Projects (1-3)4
EE-597 DC-to-DC Converters (3) 11
EE-690 Power Electronic Converters (3) 6

Fall 1989 (2/3 teaching, 1/3 research)
EE-371 Electronics I (3) 41
EE-497 Design Projects (2) 1
EE-499 Special Projects (1) 1

Spring 1989 (2/3 teaching, 1/3 research)
EE-371 Electronics I (3) 42
EE-499 Special Projects (3) 2
EE-690 Special Topics (3) 1

Winter 1988 (2/3 teaching, 1/3 research)
EE-490 Special Topics (3) 1
EE-582 Appl and Des of Pwr Elect Sys (3) 7
EE-682 Appl and Des of Pwr Elect Sys (3) 5
EE-692 Directed Reading (3) 1

Fall 1988 (2/3 teaching, 1/3 research)
EE-351 Linear Feedback Systems (3)30

Virginia Polytechnic Institute and State University (Virginia Tech, VPI&SU)
Five years teaching experience at VPI&SU as Lecturer not shown.

GRADUATE STUDENT ADVISING:

(CM) as Committee Member, (MP) as Major Professor

Student	MS	ME	PhD	Title/Topic	Dates	CM	MP
Mark Nations	X		X	Magnetics-Aware Design and Control of High Power, Medium Frequency Power Converters	2019-	X	

Raj Kumar Kokkonda			X	Wide Band Gap Device Enabled Power Conversion Systems with Improved Efficiency & Power Density for Shipboard Applications	2022-	X	
Matthew Alessi			X		2021-	X	
Isaac Wong			X	Contactless Power Transfer for Data Center Application	2021-	X	
Vineeth Krishna	X			Performance evaluation of 3.3kV novel SiC JBSFET for the application of photovoltaic string inverters	2020-2021	X	
Ajit Kanale			X	A New Technique to Improve Short Circuit Capability for Power Semiconductor Devices	2018-2022	X	
Sagar Rastogi			X	Open-Circuit Fault Analysis for a Three-phase Dual Active Bridge Converter: A Comprehensive Investigation of Mode Analysis, Transformer Behavior, and Fault Diagnosis Techniques	2022-2024	X	
Harish Pulakhandam			X	A Comprehensive Design and Performance Optimization of a High-Speed Motor Drive	2022-2024	X	
Yos Parbowo			X	Power Electronic Enabled Architectures for Critical Load Substations	2017-20--	X	
Apoorv Agarwal			X	Solid State Transformer for LV-to-MV high-power applications And capacitor charging power applications	2019-	X	
Apoorv Agarwal	X			Adaptive Control of a Hybrid Energy Storage System for Wave Energy Conversion Application	2018-2019	X	
Thomas Dotson			X	Automatic Drafting and Software Simulation of Wide Bandgap Power Electronics Commutation Loops	2018-2023	X	
Vasishta Burugula			X	Modular Power Converters for Electric Vehicle Charging Infrastructure and High-Voltage Direct Current Transmission Systems	2018-2023	X	
Heonyoung Kim			X	Control of High Frequency PMSMs with Non-Sinusoidal Back-EMF	2020-2021	X	
Pranav Murthy	X			Design of a Full Power Test System for Semiconductor Switching Characterization	2019-2021		X
Sourish Sankar Sinha			X	Investigation of High-Frequency Electromagnetic and Electrostatic Shielding for WBG Power Module	2019-2024		X
Utkarsh Mehrotra			X	Methodologies of Cascading and Scaling to realize High Voltage Cascaded SuperCascode Power Switch	2018-2022		X
Tzu-Hsuan Cheng			X	Investigation of Ultra-Thin Dielectrics on Coupled Capacitive and Inductive Effects in Laterally Conducting Power Device Packaging	2018-2023		X
Musáb Guven	X			Pulse Characterization of Ceramic Caps-Characterization of MLCCs for Power Applications	2017-2020		X
Thomas Ballard	X			Exploration of Short Circuit Capacity in Device and Power Module Design	2016-2020		X
Bo Gao			X	Scalable Medium Voltage and High Voltage Super Cascode Power Modules	2016-2018		X
Anup Anurag			X	An Accurate Calorimetric Switching Loss Measurement Method for Si and SiC devices	2014-2021	X	
Satish Rengarajan	X			Modeling and Characterization of 10 kV Silicon Carbide power MOSFET module using Saber for MV power converter performance evaluation	2016-2018	X	

Utkrash Raheja	X			Design of a GaN Based LLC Resonant Converter for Point Of Load Conversion Applications	2015-2017	X	
Xin Zhao			ABD	Ultra-Thin Substrate Materials for Ultra Dense Converters	2014-2017		X
Abhay Negi	X			Two-stage Active Gate driver for SiC MOSFET	2015-2017	X	
Adam Morgan	X		X	Investigation of Self-Oscillating Resonant Conversion and Impact on High Speed WBG Power Semiconductor Switching	2013-2019		X
Mingyu Yang	X			Investigation of 3D Gate Drivers	2013-2017		X
Haotao KE			X	3-D Prismatic Packaging Methodologies for Wide Band Gap Power Electronics Modules	2012-2017		X
Harish Pulakhandam			X		2016-2018		
Ajit Kanale	X				2018-	X	
Bryce Aberg	X				2016-2017	X	
Kasunaidu Vechalapu	X				2016-2018	X	
Utkarsh Raheja	X				2016-2018	X	
Vishnu Mahadeva Iyer	X				2016-2018	X	
Yifan Jiang	X				2016-2018	X	
Srinivas Gulur	X				2016-2018	X	
Yos Prabowo	X				2016-2018	X	
Suyash Sushilkumar Shah	X				2016-2018	X	
Yi Wang	X				2016-2018	X	
Giti Karimi Moghaddam			X	Applications of Thermomagnetic Convection in Thermal Management of Electronic Systems	2010-2014	X	
Yang Xu	X		X	Development of Advanced SiC Power Modules	2010-2017		X
Kaushik Illa	X			Investigation of Solid State Protection for Renewable Energy Systems	2010-2011		X
Krishna Prasad Bhat	X			Feasibility of High Power Equipment Protection with MEMS-Based Sensor Syst.	2009-2011		X
Arunkumar Aravamudhan	X			Investigation of Electronic Fault Interrupters for a Smart Distribution Grid	2008-11		X
Abilash Ethanur Thuppale	X			Investigation of gate drivers for Post Silicon Power Semiconductors	2009-11	X	
Othman Elkhomri (hold)			X	Advanced Topologies and Control for Electronic Energy Processing Syst	2009-resigned		X
Yuanbo Guo	X			Development of a High Current High Temperature SiC MOSFET based Solid-State Power Controller	2009-11		X
Charles Shene		X		The Tri Lakes Static Var Compensator installations and operation	2005-11		X
Timothy Dzimian		X		Increasing Transmission Capacity with Composite Core Conductors	2005-11		X
Brian Chu (hold)			X	TBD	2008-		X

Ahmed Hosny			X	Using TSC for Alternative Energy Systems	2005-09	X	
Yuan Ma			X	An Internet-based Sensor Network and its Application to Electric Field Sensing	2007-09	X	
Lanh Nguyen H		X		Soldium Sulfur (NaS)Batteries – Backup Power Source For 12kV Distribution Systems	2007-2011		X
Michael A. Ayisi		X		Interconnection Of Wind Energy On Transmission System	2006-08	X	
Michael Backus		X		Voltage Regulation And Paralleling Mismatched Transformers	2006-08	X	
Emily Ceccarelli		X		Three Phase Active Power Factor Correction Design For Military Application	2008	X	
Minh Poirier (ENSEA)	X			Advanced Energy Monitoring and Management for Distributed Vehicle Power	2007-08		X
Nicolas Kozar		X		TBD	2005-		X
Kevin Enser			X	High Frequency Effects on Electromigration in Solder Interconnects,"	2006-		X
Srikanth Pothedar	X			Investigation of Plug Hybrid Electric Vehicles on the Electrical Power Grid	2006-08		X
Mohamad Abdoulhamid			X	Investigation of Themomigration in Flip-Chip Solder Joints	2004-08		Co-
Troy McKay		X		Investigation Of Thermal Impedance And Stress In Direct Attached Ceramic-Alsic Structures For Use In Power Packaging	2006-07		X
Chia K Leong			X	Improving Materials For Thermal Interface And Electrical Conduction By Using Carbon	-2007	X	
Ames, Emily		X		Re-establishing Cathodic Protection on High Voltage Underground Pressure Fluid Filled Pipes Cables	2005-07		X
John Baudanza		X		Perform Underfrequency and Undervoltage Load Shed Analysis for Western Division	2005-07		X
Daniel Cammaratta		X		Perform Manual Load Shed Analysis for Western Division	2005-07		X
Mark Domino		X		Rebuilding the Buffalo 23 kV and 4.16 kV Systems to Meet Upcominng Load and Asset Replacement Strategies	2005-07		X
Timothy Dzimian		X		Increasing Transmission Capacity with Composite Core Conductors	2005-		X
Leonard Fiume		X		Voltage Support and Power Flow Improvement on 115 kV System with Shutdown of Generation in the Tonawanda Area Load Pocket - Analysis of the Huntley Options 1A, 1B, 2A, 2B – Pat I	2005-07		X
William Flemming		X		Procedure Change and Evaluation for Line Personnel to Perform Work on Transmission Lines	2005-		X
Jacky Fung		X		Understanding the Relationship between Power Generation and System Stability	2005-07		X
Brian Gordon		X		Reactive Reserves on the Transmission System	2005-07		X
Kenneth Hampton		X		Reactive Compensation on the Distribution System	2005-07		X
Jeffery Maher		X		Voltage Support and Power Flow Improvement on 115 kV System with Shutdown of Generation in the Tonawanda Area Load Pocket - Analysis of the Huntley Options 1A, 1B, 2A, 2B – Part III	2005-07	X	

Glynn Matthews		X		Increasing Transmission Capacity with Composite Core Conductors	2005-	X	
Jon Moscovic		X			2005-06	X	
Marleny Lopez Sanchez		X		Comparative Analysis and Implementation of the S&C Tripsaver for Electrical Distribution System Protection	2005-07	X	
Charles Shene		X		The Tri Lakes Static Var Compensator installations and operation	2005-07	X	
Jeffrey Wagner		X		Perform Manual Load Shed Analysis for Western Division	2005-07	X	
Davinah Walker		X		Comparative Analysis and Implementation of IntelliRupter PluseCloser for Electrical Distribution System Protection	2005-07	X	
Henry Wysocki		X			2005-06	X	
Robert Zahm		X		Voltage Support and Power Flow Improvement on 115 kV System with Shutdown of Generation in the Tonawanda Area Load Pocket - Analysis of the Huntley Options 1A, 1B, 2A, 2B – Part II	2005-07	X	
James Zeames		X		Robert Moses Unit 8 Condition Monitoring	2005-07	X	
Nakul Pandit	X			Simulation And Control Of Thyristor Controlled Series Capacitors	2005-07	X	
Grzegorz Prusaczyk		X		TBD (Hired by Nat'l Grid, now part of NG program)	2004-		X
Charan Kumar Babu Thondapu Vignu	X			Digital Control of Alternator Using Delta Sigma Technique	2004-05		X
Hu Ye			X	Reliability of BGA Solder Joints Under Electrical Current for Power Electronic Packaging	2001-03		Co-
I. B. Schirmer	*			* MEd. - Retention Factors in Undergraduate Electrical and Mechanical Engineering Programs at the State University of New York at Binghamton	- 1997	X	
Michael Misiewicz	X			Non-Linear Capacitor Characterization through Self-Resonant Testing," 1996- ABD	1995-96		X
Ronald K. Huber	X			On-Line Diagnostic System for Power Generators	1994-95	X	
Michael F. Thompson	X			A Space Vector Modulated, Three Phase, Four Wire Inverter	1995-97		X
Nathan L. Richardson	X			Modeling and Characterization of Field Aided Drift in Highly Interdigitated Thyristor devices - ABD	1993-96		X
Alex Craig	X			Modeling and Characterization of a New, Ultra Fast, High Power, Four Layer Semiconductor Device, The Pulsed Power Thyristor	1995-97		X
David Scheel	X			A Co-Generation Fueling Station for Electric Vehicles – ABD	1994-96		X
Clark Bendall	X			A Zero–Voltage Transition Audio Amplifier Employing a New Current Control Technique	1994-96		X
Jason Young	X			Control of a Transitional Boost–Buck Converter	1994-96		X
Faye Li	X			Analysis and Control of a Resonant–Switched Self–Oscillating Converter	1995-96		X
Ron Wunderlich			X	Modeling of Emission and High Injection Effects on a Four–Layer Semiconductor Structure	1991-95		X

M. Sakar	X			A Mathematical Approach to Minimize the Total Mass of a Space Based Power System by Using Multivariate Non–Linear Optimization	1993-95		
Roland S. Saint-Pierre	X			Analysis of a Self-Oscillating Zero-Voltage Switched Quasi-Resonant Half-Bridge DC-DC Converter	1989-92	X	
Danny Root	X			Synthesis of Switch–Mode Power Electronic Circuits for Energy Recirculation and Storage	1992-93		X
J. R. Weber	X			Lunar Base Power System Design Considerations	1991-92	X	
Charles R. Mosling	X			Using DC/DC Converters to Equalize the Charging of Long Battery Strings	1991-92		X
Rahul Puri				Hybrid Implementation of an Off–Line DC–DC 500 Watt Zero–Current Switched Quasi–Resonant Power Converter	1990-91		X

Also on committee of:

P. Barkley	Ph. D.	1993 - 1998
V. Blaignan	Ph. D.	1993 - 1995
J. Hamilton	M. S.	1989 - 1990
P. Schmidt	M. S.	1991 - 1993
W. Franz	M. S.	1988 - 1992
A. Lipincott	M. S.	1987 - 1990

VISITING SCHOLARS:

Nick Mescia	2019-	Former IBM.
Asger Bjoern Joergensen	2018-18	Aalborg Univ. - Denmark
Nikhil Joshi	2018-18	Sardar Vallabhbhai Nat'l Inst. of Tech., Surat, India
Sai Vijayendra	2013-14	IIT – Madras India
L. Drif	2009-09	(ENSEA) France
M. Mopty	2008-08	(ENSEA) France
S. Xu (Professor)	1995-96	P. R. China
M. Schuller	1994-94	Germany
U. Wollman	1994-94	Germany
I. Thiele	1994-94	Germany

APPENDIX I
EXPERIENCE DETAILS

POSITION: Research Professor, 2011 –
Employer: North Carolina State University
Department Chairperson: Dr. Daniel Stancil
(Also, independent research thru DCHopkins & Associates, LLC; DensePower, LLC)
Objective: Develop an electronic packaging infrastructure support the university and FREEDM Systems Center.
Accomplishments:

- Received a $633K provision to establish a Laboratory for Packaging Research in Electronic Energy Systems for high voltage (>15kV) and high power.
- Established strategic industrial partnerships
- Continuation of Ph-I SBIR – Navy

POSITION: Research Professor, 2008 - 2011, Research Associate Professor, 1998 - 2007
Employer: SUNY-Buffalo
Department Chairperson: Dr. Dennis Malone/Dr. Vladimir Mitin/Dr. Alex Cartwright/Dr. Stella Battalama
(Incl: Independent research through DCHopkins & Associates, LLC; DensePower, LLC)
Objective: Develop research initiatives.
Accomplishments:

- Secured funding totaling $1.1M last 5 yrs., $200K pending, ~$6M/3yr under development
- Founded two (2) companies (DCHopkins & Associates, LLC; DensePower, LLC) and awarded two Ph-1 SBIR (2003 and 2006) contracts and one Ph-II OSD-SBIR (2008-2010)
- Published 57 conference publications, 35 journal articles (some pending) and 2 book chapters.
- Established or conducted 21 continuing education courses, one webinar, and gave other numerous guest lectures in power electronics and packaging.
- Major advisor for 23 graduate students, and on committee of more than 20 others
- Developed seven (7) courses, including a Capstone Senior Design.
- Nominated for *Best paper of conference*, and gained 4 *Best paper of session* awards
- Received the IEEE Region I award for "Outstanding Contributions in Education, Research and Professionalism."
- *Chairman, Technical Co-Chairman* of two regional Symposia
- *Co-Founder and Technical Program Chairman*, International Workshop on Integrated Power Packaging, 1998; *General Chairman*, 2000; *General Chairman*, 2004 (tentative)
- Participated in and contributed to three major industry studies by the PSMA.
  - Developed the Framework for Power Packaging Technology Road Mapping.
- Chaired four power-packaging committees and organized/chaired 26 conference sessions.
- Founding advisor for the UB Student Chapter of the International Microelectronics and Packaging Society

POSITION: President & Founder, June 2008 – present (12/2010), DensePower, LLC
Employer: DensePower, LLC
Objective: Establish a pre-launch company to develop and commercialize Ph-II SBIR RL-3 research.
Accomplishments:
- Launch with three partners and ~$1M funding, in 18 months added 3 FTEs.
- Positioned for extension into two additional markets outside of military.
- Formally formed strategic partnership for low-volume prototyping and manufacturing
- Developed power control modules for power supplies, protection and motor drives

POSITION: Assistant Professor, Dept of Electrical Engineering
From: September 1994-August 1998
Employer: SUNY-Binghamton
Department Chairperson: Dr. James Morris / Dr. George Sackman
Objectives: Development of teaching and research initiatives in the area of electronic energy systems and electronic and packaging, and support of departmental and university programs.
Accomplishments:
- Established a research program with federal, state and local funding exceeding $610K, in the following topic areas:
  - Analysis of metal-matrix-composite, multi-layered electronic packaging structures and identification of non-monotonic changes in thermally induced stresses. This was the first work in multi-layered structures that provided mechanical insight into package optimization as a function of electrical requirements. This was a multidisciplinary (multi-departmental) project.
  - Semiconductor development support and characterization of the fastest pulse-power thyristor (>20kA/s, 3kV) using high density packaging techniques
  - Creation of a comprehensive technical framework for evolving a power packaging technology (plenary paper at IEEE Applied Power Electronics Conference, 1998). This was an international, multi-university project, and is the first scientifically derived framework.
- Established a three course graduate level sequence in power electronics. First course was cross-listed as a senior elective and covered the major topics of devices and topologies. Two follow-on courses focused on 'power supply design' using a pragmatic approach, and on 'controls in power electronic systems' using a rigorous approach.
  - Developed and revised several other departmental courses including Electronics for the non-electrical engineering major.
- Established a comprehensive power electronics program for research and teaching. Advisement as major professor included one doctoral and 9 masters students, and four visiting scholars.
  - Established a power electronics laboratory, valued over $150K in new equipment, for research in high-frequency high-density power electronic systems. The lab also supported undergraduate research reaching a peak of 6 undergraduates (from an available 70 juniors plus seniors).
  - Established an Industry Partnership program to support the "Power Electronics and Power Packaging Laboratory".

- Co-initiated an 'Industrial Internship Program' with several local companies in power electronics.
- Strongly supported the development and initiation of the SPIR program with several contracts totaling over $165K in value. Initiated the first multi-school project.

- Provided strong extension leadership in the local and international professional community. Presently, IEEE Binghamton Section Chairman and chairman of several IEEE society committees.

POSITION: Research Professor, SUNY Research Foundation
From: January 1993 - September 1994
Employer: SUNY-Binghamton
Department Chairperson: Dr. James Morris
Objectives: Research in the area of electronic energy systems. This was a full time research position self-funded by government and industry from contracts garnered by Dr. Hopkins.
Accomplishments:

- Developed a true 3-D power package with orthogonal components. (1994 ISHM Int'l Symp. on Microelectronics, *Best Paper of Session*.)
- Developed modeling of shared resources for power allocation in space based power systems.

POSITION: Assistant Professor, Department of Electrical Engineering
From: September 1988 – August 1992
Employer: Auburn University
Department Chairperson: Dr. David Irwin
Objectives: Development of teaching and research initiatives in the area of power electronics and power packaging, and support of departmental and university programs.
Accomplishments:

- Established a power electronics research laboratory for characterization of power semiconductor devices and power packaging with programs valued at greater than $170K.
- Research included:
  - discovery of a new class of converters based on re-circulation of energy. These topologies provide a comprehensive family with application in pulse power and charge-pump systems. This work has continued and recently extended by a visiting scholar at SUNY – Binghamton with much work still unpublished. ("Synthesis of a New Class of Converters That Utilize Energy Recirculation," IEEE Power Electronics Specialists Conference, 1994.)
  - The concept was extended to energy charging systems for serial-cell charge equalization as applied in batteries. This was the first reported work on charge equalization for battery systems. ("The Use of Equalizing Converters for Serial Charging of Long Battery Strings," IEEE Applied Power Electronics Conference, 1991; *Invited Paper*; and two journal papers.)
  - characterization of copper-on-ceramic for power electronic packaging. This was the second, and independent, work in the field showing non-monotonic behavior of thermal package conductance of the layered structure, and the first to provide design

rules for selecting interconnect thickness as a function of both electrical and thermal requirements.

- Developed a graduate/undergraduate course in Power Semiconductor Devices, and a two-course sequence in Senior Design.
- Developed electronic drive and battery charging systems for the Sol-of-Auburn solar powered race vehicle. The work on charge equalization in batteries resulted form this work.

POSITION: Instructor, Department of Electrical and Computer Engineering
From: September 1983 – August 1988
Employer: Virginia Polytechnic Institute and State University (Virginia Power Electronics Center)
Department Chairperson: Dr. Daniel Hodge
Ph.D. Co-Advisors: Drs. F. C. Lee and F. W. Stephenson)
Objectives: Departmental teaching full time and Center research
Accomplishments:

- Co-developed the highest density converter ($60W/in^3$, 1988) using zero-current-switching and high-density packaging techniques. (*IEEE Transactions on Power Electronics*, 1989; First Place - Alabama Section, IEEE.
- Developed ultra-thick thick-film printing techniques. (ISHM Int'l Symposium on Microelectronics; *Best Paper of Session*.)

POSITION: Senior Engineer, Research and Development Center
From: September 1982 - August 1983
Employer: Research and Development Center, Carrier Corporation, Syracuse, New York
Accomplishments:

- Performed corporate study identifying where power electronic motor drives fit within Carrier products; response to foreign products having variable speed compressor and fan HVAC systems
- Developed evaluation procedure and evaluated a competitor variable speed drive system.

POSITION: Electrical Engineer, Corporate Research and Development Center
From: May 1977-August 1982
Employer: Corporate Research and Development Center, General Electric Company, Schenectady/Syracuse, New York,
Accomplishments:

- Studied and developed new standards for transient testing, specifically “6kV ring wave”.
- Developed washing machine research test system with analog controller, user interface and low-inertia variable-speed dc pancake motor drive
- Designed and developed a prototype variable-speed, six-step ECM drive system including power stage, controls and test system for a appliance application. Devised a new optimal current control scheme

POSITION: President & Founder, DCHopkins&Associates, DBA and LLC
From: May 1977-present
Employer: DCHopkins&Associates, LLC

Objective: Advanced design and consulting services, and SBIR sponsored research.
Accomplishments (*HIGHLIGHTS*):

- Performed design reviews for Emerson Electric & Subsidiaries:
  - Copeland, Design Review "an integrated compressor – drive electronics in a single unit," 11 January 2007
  - Fluid Systems, Design Review "Titan Integrated Motor and Control (IMAC) system for a front-loading washing machine," 15-16 April 2010
  - Motor Division, Design Review "Controlled Induction Motor Drive, 19 Oct.2001
  - Fluid Systems, Design Review "design review of motor pump product for residential pools," 12-13 May 2009
  - Ridge Tool, Design Review, "...new approach to drain cleaning by placing the motor drive at the point of load. ...The brushless dc motor has the highest technical impact on this project," 18 June 2003
  - Design Review, "high voltage power supply for military applications," 07 July 2007
  - Design Review, "technical design and packaging guidance for automotive electric vehicle drive electronics, and design for manufacturability.
- Grundfos A/S – Design and Development, "pump motor drive electronics and packaging for down-hole well pumping systems," 1998 - 2000
- Developed pulse thyristor test systems for zebra mussel eradication
- Developed lighting ballast systems with LonWorks
- Developed solid state circuit breakers for military joint strike fighter program
- Study and paper design for integrated power electronics with PM generator for battlefield deployment – US Army
  - Developed power control modules for power supplies, protection and motor drives
- Expert Witness, (see table below)

ATTORNEYS	CIRCA	SUIT	PARTY	DESCRIPTION	OPN	DEP	TRIAL	STATUS
Kirkland & Ellis, LLP Vicor Corporation v. Delta Electronics, Inc.	Aug'23-	Patent	Defendant	ITC regarding resonant power converters	X	X	T	Active
Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Arigna Technology Ltd. v. Robert Bosch	Jun'23 -	Patent (IPR)	Defendant	*Inter Partes* Review regarding circuits	X			Active
Troutman Pepper Hamilton Sanders LLP Southern Power Co. v. First Solar Electric, LLC.	Mar'22-	Product Liability	Plaintiff	Solar Inverters	X	X	A	active
Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Arigna Technology Ltd. v. BMW of North America, LLC, Daimler AG, Mercedes-Benz USA, LLC, General Motors LLC, Volkswagen Group of America, Inc., Nissan North America, Inc., American Honda Motor Co., Inc.	Nov'21-Sep'22	Claims Construction, IPR, EPR	Defendants	Technical interpretation regarding High Voltage ICs	X	X		Completed
Crowell & Moring LLP	Jul'21-	Patent (ITC)		under NDA				Completed

Latham & Watkins LLP Volterra Semiconductor LLC v. Monolithic Power Systems, Inc.	Mar'20-Sep'22	Patent (IPR)	Defendant	*Inter Partes* Review regarding magnetic components.	X			Completed
Finnegan, Henderson, Farabow, Garrett & Dunner, LLP Volterra Semiconductor LLC v. Monolithic Power Systems, Inc.	Mar'20-Sep'22	Patent (IPR, EPR, Invalidity)	Defendant	*Inter Partes* Review *Ex Parte* Reexamination Invalidity Report regarding magnetic components	X	X		Completed
Rajah & Tann Singapore LLP	Aug'18 -Dec'18	Infringement	Defendant	under NDA				Suspended
Merlin Law Group Houston, TX Pictorial Offset Corp v. Zurich American Insurance Company	May'17 - Dec'17	Prehearing Brief-Liability	Plaintiff	Technical interpretation; cause of equipment failure and loss	X			Completed
McCarter & English, LLP Boston, MA (Pentair Water Pool & Spa, Inc. and Danfoss Drives A/S v. Hayward Industries, Inc.)	Oct'11 - Dec'12	Infringement	Defendant	Technical interpretation; evaluation of electronic design, variable speed drives and pumping systems	X	X		Completed
Greenburg Traurig, LLP Dallas, TX (Whirlpool Corp. v. Sensata Tech. and Texas Instruments Corp)	Jul '11 -Oct'11	Product Liability	Defendant	Technical interpretation, computer simulation and interpretation of cause, motor starter	X	X		Completed
Phillips Lytle LLP Buffalo, NY (Version New York Inc. v. National Grid USA Service Company)	Oct '06 - Apr'07	Contractual	Plaintiff	Technical interpretation, review of problem and standards, expert report. Resolved through the PSC; favorable resolution	X			Completed
Latham & Watkins, Chicago, IL (*Microsemi v. Monolithic Power Systems)*	Dec '04 -Mar'06	Infringement	Defendant	Expert report, deposition response for summary judgment, electronic lighting; favorable resolution	X	X		Completed
Gresens & Gillen Buffalo, NY	Dec '05	Product Liability	Plaintiff	Technical interpretation, expert opinion, electronic lighting; favorable resolution	X			Completed
Jenner & Block (IMS) Chicago, IL	Apr '05 -Apr'06	Infringement	Plaintiff	Technical interpretation/prior art, perform circuit analysis and tests for electronic lighting	X			Completed
Baker, Strechi, Cowden and Rice (KKAI) Kansas City, MO	Mar '05 -'06	Product Liability	Defendant	Evaluate marine electrical system for high voltage insulation failure, source of spark; favorable resolution	X			Competed
George W. Narby, Attorney at Law, Buffalo, NY	Jan '04	Liability	Plaintiff	Technical opinion/report on electrical insulation breakdown in factory fire	X			Completed Appealed
Varity Zecal, Inc., Churchville, NY	Jun '98	Infringement	Plaintiff	Technical interpretation; evaluation of electronic packaging design and processing. Unfavorable resolution	X			Completed

OPN: Expert Opinion, may have public report DEP: Deposition given TRIAL: Testified at trial

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