

Dr. Alex Q. Huang

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Professional Preparation:

Institution	Location	Major	Degree/Year
Zhejiang University	Hangzhou, China	Electrical Engineering	B.S. 1983
Chengdu Institute of Radio Engineering	Chengdu, China	Electrical Engineering	M.S. 1986
Cambridge University	Cambridge, UK	Electrical Engineering	Ph.D. 1992

Appointments:

2017-now	Dula D. Cockrell Centennial Chair in Engineering, University of Texas at Austin
2007-2017	Progress Energy Distinguished Professor of Electrical and Computer Engineering, NCSU
2008-2014	Founding Director, NSF Engineering Research Center FREEDM Systems Center
2008-2014	Founding Director, Advanced Transportation Energy Center, NC State University
2004-2007	Alcoa Professor of Electrical Engineering, Dept. of Electrical Engineering, NCSU
1994-2004	Professor, Center for Power Electronics System and the Bradley Department of Electrical Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA
1992-1994	Research Fellow, Magdalene College, Cambridge, United Kingdom
1992-1994	Research Associate, Department of Engineering, Cambridge University
1989-1992	Research Student, Department of Engineering, Cambridge University
1988-1989	Marketing Manager, XiNi Technology Company, China
1986-1988	Assistant Lecturer, Chengdu Institute of Radio Engineering, China

Five Products Relevant to Proposal:

- Li, Xuan; Zhang, Liqi; Guo, Suxuan; Lei, Yang; Huang, Alex Q.; Zhang, Bo, "Understanding switching losses in SiC MOSFET: Toward lossless switching," in Wide Bandgap Power Devices and Applications (WiPDA), 2015 IEEE 3rd Workshop on , vol., no., pp.257-262, 2-4
- Zhang, Liqi; Guo, Suxuan; Li, Xuan; Lei, Yang; Yu, Wensong; Huang, Alex Q., "Integrated SiC MOSFET module with ultra low parasitic inductance for noise free ultra high speed switching," in Wide Bandgap Power Devices and Applications (WiPDA), 2015 IEEE 3rd Workshop on , vol., no., pp.224-229, 2-4 Nov. 2015
- X. Song, A. Q. Huang, L. Zhang, P. Liu and X. Ni, "15kV/40A FREEDM super-cascode: A cost effective SiC high voltage and high frequency power switch," 2016 IEEE Energy Conversion Congress and Exposition (ECCE), Milwaukee, WI, 2016, pp. 1-8
- Huang, Alex Q.; Song, Xiaoqing; Zhang, Liqi, "6.5 kV Si/SiC hybrid power module: An ideal next step?," in Integrated Power Packaging (IWIPP), 2015 IEEE International Workshop on , vol., no., pp.64-67, 3-6 May 2015
- X. SONG; A. Huang; M. C. Lee; C. Peng, "Theoretical and Experimental Study of 22-kV SiC Emitter Turn-off (ETO) Thyristor," in IEEE Transactions on Power Electronics , vol.PP, no.99, pp.1-1, doi: 10.1109/TPEL.2016.2616841

Five Other Selected Products:

- Rezaei, M.A; Gangyao Wang; Huang, AQ.; Lin Cheng; Scozzie, C., "Static and dynamic characterization of a >13kV SiC p-ETO device," Power Semiconductor Devices & IC's (ISPSD), 2014 IEEE 26th International Symposium on , vol., no., pp.354,357, 15-19 June 2014
- In-Hwan Ji; Bongmook Lee; Sizhen Wang; Misra, V.; Huang, AQ.; Young-Hwan Choi, "High voltage AlGaN/GaN HFET employing low taper angle field-plate for stable forward blocking capability," Power Semiconductor Devices & IC's (ISPSD), 2014 IEEE 26th International Symposium on , vol., no., pp.269,272, 15-19 June 2014

- Xing Huang; Dong Young Lee; Bondarenko, V.; Baker, A; Sheridan, D.C.; Huang, A.Q.; Baliga, B.J., "Experimental study of 650V AlGaIn/GaN HEMT short-circuit safe operating area (SCSOA)," Power Semiconductor Devices & IC's (ISPSD), 2014 IEEE 26th International Symposium on , vol., no., pp.273,276, 15-19 June 2014
- Woongje Sung; Van Brunt, E.; Baliga, B.J.; Huang, A.Q.; , "A New Edge Termination Technique for High-Voltage Devices in 4H-SiC–Multiple-Floating-Zone Junction Termination Extension," Electron Device Letters, IEEE , vol.32, no.7, pp.880-882, July 2011
- Wang, Fei; Wang, Gangyao; Huang, Alex; Yu, Wensong; Ni, Xijun, "Design and operation of A 3.6kV high performance solid state transformer based on 13kV SiC MOSFET and JBS diode," Energy Conversion Congress and Exposition (ECCE), 2014 IEEE , vol., no., pp.4553,4560, 14-18 Sept. 2014

Synergistic Activities:

- Research & Education Productivity:
 - \$220m+ external funding, 70+ graduated Ph.D. and master students, 120 Journal papers, 371 Conference papers, 24 US Patents; 30+ Invention Disclosures
- Professional Society Membership:
 - Fellow, IEEE since 2005
 - Member of IEEE EDS, PELS societies
- Professional Services:
 - Reviewer for IEEE Trans. On Electron Devices, Electron Letter, Power Electronics, Industry Electronics and Industry Application
 - Reviewer for NSF and DOE proposals
 - 2015-Vice Chair, IEEE WIPDA Conference
 - 2013-Honorary Chair, IEEE WBG Workshop, Columbus, Ohio
 - 2012-General Chair, IEEE ECCE 2012, Raleigh, North Carolina
 - 1994-now Various Executive Committee, Technical Committee, Session Chair and Short Course Chair role in IEEE ISPSD, APEC, ECCE, PESC, IPEDMC, IAS, IECON
 - 1994-now – Reviewers for various journals and government agencies
 - 2016 –Associated Editor, IEEE Transaction on Industry Electronics Special Issue on Wide bandgap Power Electronics
 - 2004- Associated Editor, IEEE Transaction on Power Electronics Special Issue on Integrated Power Electronics