
Editorial

Cher Ming Tan

Center for Reliability Sciences & Technologies
and Electronic Engineering Department,
Chang Gung University,
Taoyuan 33302, Taiwan

and

Department of Urology,
Chang Gung Memorial Hospital,
Linkou, Taoyuan 33302, Taiwan

and

Center for Reliability Sciences and Technologies,
Chang Gung University,
Taoyuan 33302, Taiwan
Email: cherming@ieee.org

Nagarajan Raghavan

Engineering Product Development,
Singapore University of Technology and Design,
487372, Singapore
Email: nagarajan@sutd.edu.sg

Preetpal Singh

Center for Reliability Sciences & Technologies
and Electronic Engineering Department,
Chang Gung University,
Taoyuan 33302, Taiwan
Email: preetpalsingh96@gmail.com

Biographical notes: Cher Ming Tan received his PhD in Electrical Engineering from the University of Toronto, Toronto, ON, Canada, in 1992. In 1997, he joined Nanyang Technological University, Singapore, as a Faculty Member, and Chang Gung University, Taoyuan, Taiwan, in 2014. He is the Director of the Center for Reliability Sciences and Technologies, Professor with the Department of Electronic Engineering, and is with the Institute of Radiation Research, College of Medicine, Chang Gung University; Honorary Chair Professor with the Center of Reliability Engineering, Ming Chi University of Technology, Taoyuan, Taiwan; and Researcher with the Department of Urology, Chang Gung Memorial Hospital, Taoyuan, Taiwan. He has authored or co-authored more than 350 international journal and conference papers and holds 12 patents and one copyright for reliability

software. He is the past Chair of IEEE Singapore Section, a Senior Member of the American Society for Quality, a Distinguished Lecturer of the IEEE Electron Devices Society on reliability, the Founding Chair of IEEE Nanotechnology Chapter – Singapore Section, Fellow of The Institution of Engineers Singapore, and Fellow of Singapore Quality Institute. He is currently an Editor for the Scientific Report of Nature Publishing, an Editor for the *IEEE Transactions on Device and Materials Reliability*, an Associate Editor for *Microelectronics Reliability*, and a Guest Editor for several international journals. He is also the Series Editor for Springer Briefs in Reliability.

Nagarajan Raghavan (Member, IEEE) received his PhD degree from the Division of Microelectronics, Nanyang Technological University (NTU), Singapore, in 2012. He was a Postdoctoral Fellow with the Massachusetts Institute of Technology (MIT), Boston, and IMEC, Belgium, in joint association with the Katholieke Universiteit Leuven (KUL). He is currently an Assistant Professor with the Singapore University of Technology and Design (SUTD), Engineering Product Development (EPD) Pillar. His work focuses on reliability assessment, characterisation and lifetime prediction of nanoelectronic devices as well as material design for reliability, inverse design, physics informed machine learning, uncertainty quantification and prognostics and health management of electronic systems. He was a recipient of the IEEE Electron Device Society (EDS) Early Career Award for 2016, Asia-Pacific recipient for the IEEE EDS PhD student Fellowship in 2011, and the IEEE Reliability Society Graduate Scholarship Award in 2008. To date, he has authored/co-authored more than 180 international peer-reviewed publications and five invited book chapters as well. He serves as the General Chair for the IEEE IPFA 2020 at Singapore and has consistently served on the review committee for various IEEE journals and conferences including IRPS, IIRW, IPFA, and ESREF. He is currently serving as an Associate Editor for *IEEE Access*. He was an invited member of the IEEE GOLD committee, from 2012 to 2014.

Preetpal Singh received his BS degree from Guru Nanak Engineering College, Hyderabad, India, in 2007, the MS degree from Amity University, Noida, India, in 2013, and the PhD degree from the Department of Electronic Engineering, Semiconductor Laboratory, Chang Gung University, Taoyuan, Taiwan. He is currently a Post-Doctoral Fellow with the Center for Reliability Sciences and Technologies, Chang Gung University, Taoyuan, Taiwan. He has published his research in reputed journals like *IEEE Transactions on Device and Materials Reliability*, *Microelectronics Reliability*, and *Scientific Reports*. His research interests include graphene-based high power LEDs, Li-ion batteries, Quantum dot based LEDs, high power LED degradation study, and LED reliability. He is also the Reviewer for the *IEEE Transactions on Device and Materials Reliability* and *Microelectronics* journals.

The 9th IEEE International Nanoelectronic Conference (INEC) 2019 was held in Kuching, Malaysia from 3–5 July, 2019. The conference was organised by IEEE Nanotech Chapter, Singapore Section with technical support from Swinburne University of Technology, Sarawak, Malaysia and Universiti Malaysia Sarawak, Malaysia. The three days conference included oral and poster sessions as well as Keynote and Invited speeches. The theme selected for this series was “Nanoelectronics and Digital

Applications”, which aimed to focus on the transition from research outcomes into real applications.

This special issue consists of five papers which are revised and expanded from the original conference presentation. All papers are carefully selected and peer-reviewed. This issue covers aspects of the application of nanoelectronic low-dimensional materials, carbon materials, nanomaterials, nanophotonics, MEMS/NEMS, nanoelectronics and sensors and actuators.

We would like to thank all the authors and reviewers for their professionalism and contribution to this special issue. Special gratitude should also be given to Dr. Lionel Vayssieres, Editor-in-Chief of the *International Journal of Nanotechnology*, for providing this wonderful opportunity.