



Prof. Beng Ong – Biography

Prof. Beng Ong is Director of Research Centre of Excellence for Organic Electronics, Deputy Director of Institute of Creativity, and Chair Professor of Materials Science at Hong Kong Baptist University. He was formerly a Distinguished Nanyang Professor at Nanyang Technological University in Singapore, concurrently holding joint Directorships at Institute of Materials Research and Engineering and Singapore Institute of Manufacturing Technology as well as a Program Directorship at Singapore Agency for Science, Technology and Research (A*STAR). Prior to his relocation from North America to Asia in 2007, Prof. Ong was a Senior Fellow and 21st-Century Materials Strategist at Xerox Corporation and an Area Manager at Xerox Research Centre of Canada. Over the years, he has also held adjunct professorships at McMaster University and University of Waterloo in Canada, and Shanghai JiaoTong University in China as well as an Honorary Professorship at Shanghai East China University of Science and Technology. Prof. Ong has published extensively in advanced materials, organic electronics, and nanotechnology, and has delivered numerous invited talks including plenary, keynote and distinguished lectures. He has an H-index of 65 and over 16,000 citations, and currently holds a patent portfolio of 230 US patents. His honors and recognitions include US Scientific American Top-50 in Chemicals and Materials, Nanyang Distinguished Alumni Award, Chester Carlson Inventor Award, Xerox Top Innovator, etc. as well as international program awards including American Chemical Society's Innovation Award, NanoTech-50's Nanotechnology Innovation Award and Nanotechnology Commercialization Award, to name a few.

Prof. Ong received a B.Sc. degree from Nanyang University, a Ph.D. degree from McGill University, and did his postdoctoral studies at Harvard University before joining Xerox.

Printed Electronics – Progress in Materials and Processes

Abstract

The interest in printed electronics has exploded over the last decade owing to its potential for creating novel impactful large-area, lightweight, flexible, and low-cost electronics. To realize this technology vision, manufacture of semiconductor devices by high-throughput roll-to-roll printing, instead of slow, batch-wise photolithographic processes, would be paramount. Printed electronics offers a low-cost and eco-friendlier manufacturing approach to a wide spectrum of semiconductor devices including next-gen displays, ultra-low-cost RFIDs, smart labels/packaging, sensors and images, etc. Foremost among critical enablers to propel this paradigm shift in manufacturing is a performance-fulfilling materials suite and compatible processes for fabricating functionally-capable transistors – the fundamental building blocks of modern microelectronics. This presentation discusses the issues, challenges, and advances in materials and processes for printed electronics over the last decade and the outlook for this emerging technology moving forward. It aims to shed light on whether this emerging technology is all fantasy and hype or innovation and opportunities of impactful commercial values for our times and beyond.