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**Beng S Ong***Baptist University, Hong Kong***Progress in semiconductor materials and processes for printed transistors**

In recent years, significant advances have been made in organic semiconductor materials and process development for printed electronics. The field-effect mobility of organic thin-film transistors (OTFTs) has progressed from gross performance deficiency over a decade ago to meet electronic application requirements today. This quantum leap in OTFT performance has been propelled by both creative semiconductor design and process innovation. Notwithstanding these achievements, there remain significant technical challenges for transitioning printed transistors from laboratory to marketplace. This presentation discusses the issues and challenges of printed transistors and potential approaches to circumventing these technical difficulties. Particular emphasis will focus on materials design and process strategies directed to promoting and facilitating molecular self-assembly of polymer semiconductors to enhance charge carrier transport efficacy. Through simple solution processes under appropriate conditions, we have been able to drive molecular self-assembly of polymer semiconductors to significantly higher molecular orders, leading to greatly enhanced field-effect mobility and current modulation.

Biography

Beng S Ong is the Director of Research Centre of Excellence for Organic Electronics and Chair Professor of Materials Science at Hong Kong Baptist University. He was formerly a Nanyang Professor at Nanyang Technological University in Singapore, who also held joint appointments as Director at Institute of Materials Research and Engineering and Singapore Institute of Manufacturing Technology. Prior to his relocation to Asia in 2007, he was a Senior Xerox Fellow and 21st-Century Materials Strategist at Xerox Corporation as well as Area Manager at Xerox Research Centre of Canada. Over the years, he had held adjunct professorships at various universities including McMaster University and University of Waterloo in Canada, and Honorary Professorship at Shanghai East China University of Science and Technology. He has published journals extensively in Advanced Materials, Organic Electronics, Nanotechnology, etc. Currently, he has a patent portfolio of 230 US patents and many foreign equivalent patents.

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