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Smart city with clean energy enabled by magnetic sensing

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A smart city is a sustainable urban center that interconnects and improves quality of life for its inhabitants which are ever increasing due to the rapid urbanization particularly in Asia. A smart city is composed of a number of components including smart buildings, smart grid, smart energy and smart transportation. Many of these components are supporting clean energy which is a promising solution to the threatening environmental problems such as pollution, carbon dioxide emission and ozone layer depletion. On the other hand, the integration and penetration of clean energy into smart cities poses challenges to the power systems that require sophisticated sensing in order to maintain power stability. Sensing is a major framework of a smart city as it gathers vital data and statistics to ensure the smooth operation of the city. Most of the smart city applications are created with the building blocks of sensors. Magnetic, being one of the six major sensor energy forms, plays an important technical role in both smart city and clean energy. Therefore smart city, clean energy and magnetic sensing form a trilateral relation that is shaping the current status as well as future prospect of smart living. In this talk we will discuss how magnetic sensing can be implemented to enable smart city with clean energy. We will look at the latest development of applications of magnetic sensors in smart city and clean energy. An overview picture of the technology trend will be presented to illustrate the contribution of magnetic sensing to sustainability and smart future.

Biography

Philip W T Pong is a chartered physicist, a chartered electrical engineer, a chartered energy engineer, and a registered professional engineer. He is working on magnetoresistive magnetic field sensors, smart grid, and smart living in the Department of Electrical and Electronic Engineering (EEE) at the University of Hong Kong (HKU). He received a B.Eng. in EEE of HKU in 2002 with 1st class honours. He obtained his PhD in Engineering from the University of Cambridge in 2005. After working as a postdoctoral researcher in the Magnetic Materials Group at the National Institute of Standards and Technology (NIST) for three years, he joined the HKU Faculty of Engineering where he is now an associate professor. He is a Fellow of the Institute of Materials, Minerals and Mining and also a Fellow of the NANOSMAT Society. He has published over 200 technical papers with over 100 SCI publications.

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