



# 3rd International Nanotechnology Conference & Expo

May 7-9, 2018 Rome, Italy

## Application of Quantum Dots for Colour Improvement of Displays

**Hsueh-Shih Chen**

Department of Materials Science & Engineering, National Tsing Hua University, Taiwan

Quantum dots (QDs) are currently considered to be a solution for future display standards and are being applied to LCD displays for colour improvement. Various application types of QDs in displays are under development, e.g., polymer/QDs thin films, QD light-emitting-diodes (LED), QD color filters and QD electroluminescence devices (QLED), in which the thin film type has been introduced to high-end display products by the main TV brands. Current challenges of the QD-based displays are colour impurity, emission efficiency and thermal stability that still need to be further improved. In this report, we will go through the various application types of QDs in lighting and displays. In particular, the polymer/QDs thin films and QD LEDs will be surveyed and discussed regarding of the narrow emission bands (full-width at half-maximum,  $fwhm < 30$  nm) and thermal stability/reliability.

### Biography:

Dr. Hsueh-Shih Chen received his PhD in 2009 from the University of Cambridge. Before his study in Cambridge, he worked as a researcher for 5 years at Industrial Technology Research Institute (ITRI) in Taiwan. From 2009 to 2010, he was a special research fellow in the National Institute of Advanced Industrial Science and Technology (AIST) of Japan. In 2012, he was offered a fellowship by the Natural Environment Research Council, and worked as a research fellow at the University of Birmingham in UK. He begins his academic career at National Tsing Hua University, Hsinchu in 2013, as an assistant professor, and then becomes an associate professor in 2015 at the Department of Materials Science and Engineering. He has published more than 80 academic papers and 40 patents and is also a founder of two quantum dot companies.