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Abstract:
OLED displays are now in commercial production for a range of products from cell phones, tablets, UHD TV's, and newly emerging applications such as AR/VR headsets and wearable devices. OLEDs offer excellent visual performance, and through the use of phosphorescent OLED (PHOLED) technology, lower power consumption than AMLCDs. OLEDs possess novel features such as transparency and flexibility, which will further increase their market potential over the next few years, and provide a much greater differentiation from current technologies.
UDC is a pioneer in the development and supply of phosphorescent OLED technology and materials for both display and lighting applications. In this talk we will review the current status of OLED technology and discuss its potential for exciting new products over the next few years. In addition we would like to report on our recent work to develop a solvent-less, mask-less printing technology for depositing patterned small molecule organic materials to manufacture large area side by side R-G-B OLED displays. Commercial manufacture of large area (TV), side-by-side RGB OLED displays is currently challenged by lack of a suitable methodology for the patterned OLED deposition. Fine metal masks used for mobile OLED displays have not been proven to scale to greater than Gen 8, and scanning smaller shadow masks across a large area has not provided acceptable yield. Inkjet technology has been in development for many years and has yet to provide sufficient performance for volume manufacturing. Organic Vapor Jet Printing (OVJP) has been developed to print patterned OLED layers for large area displays, while avoiding issues arising from the use of fine metal masks and use of solvents. In this presentation we outline how we are ensuring that our PHOLED technology meets the ever more demanding performance requirements of future products, and we will outline how our technology can further improve their performance and lower cost.

Bio:

Dr. Mike Hack is Vice-President of Business Development at Universal Display Corporation. He is responsible for developing and commercializing advanced high efficiency next generation OLED products, with a special focus on flexible display applications and solid-state lighting. Prior to joining UDC in 1999, he was associated with dpiX, a Xerox Company, where he was responsible for manufacturing flat panel displays and digital medical imaging products based on amorphous silicon TFT technology. Dr. Hack received his Ph. D. degree from Cambridge University, England in 1981 and in 2007 Dr. Hack was elected a Fellow of the Society for Information Display. In 2014 Dr. Hack was nominated to serve on the board of the U.S. OLED Lighting Coalition to promote the advancement and commercialization of OLED lighting.