

**Prof. Deepak**

Department of Materials Science and Engineering & Samtel Center for Display Technologies,
Indian Institute of Technology,
Kanpur – 208016.

Email: saboo@iitk.ac.in

Webpage: <http://home.iitk.ac.in/~saboo/>

TOPIC:

Organic LED Devices: Light Extraction and In-Ga-Zn Oxide Electronics for back planes

ABSTRACT:

Organic light emitting diode (OLED) and displays are now reasonably mature. Current research effort is to obtain efficient OLED for lighting. The lighting devices will necessarily include implementation of light extraction strategies. The light extraction strategies are implemented for what are commonly known as organic, ITO and substrate modes. This paper discusses some novel approaches for light extraction from the substrate mode. In addition, with respect to devices such as displays that require back plane electronics, traditional amorphous silicon is inadequate in electrical performance and poly-silicon has scaling issues. One of the alternative candidates getting attention is indium-gallium-zinc oxide. In this paper, we also discuss our development of this material which can be used both with glass and flexible substrates.

PROFILE:

Deepak obtained his B. Tech. degree in Metallurgical Engineering from the Indian Institute of Technology, Kanpur, in 1987. The graduate studies were completed in Materials Science and Engineering, with a M.S. in 1989 from the University of Florida, Gainesville, Florida (USA) and Ph. D. in 1993 from the University of California, Berkeley, California (USA). Following the graduate studies, he conducted a year-long Post-Doctoral work at the Argonne National Laboratory, Illinois (USA) and then another three years, beginning 1994, were spent in semiconductor device manufacturing and design at the Semiconductor Products Sector of Motorola Inc., Phoenix, Arizona (USA).

Deepak joined IIT Kanpur at the end of 1997 as an Assistant Professor in the department of Materials Science and Engineering, where he works to this date.

Research interests of Deepak are in organic and large area electronics. Specifically, he researches organic light emitting diodes and organic thin film transistors. Current thrust is in flexible electronics. He maintains close interaction with industry. For a display maker, he has led a team to develop passive matrix, 96x64 and 128x28 resolution, full color displays for small size applications.