

SWNT thin films for high optical quality flexible touch panels

Esko I. Kauppinen

Aalto University School of Science, Department of Applied Physics

PO Box 15100, FI-00076 Aalto, FINLAND

Contact e-mail: *esko.kauppinen@aalto.fi*

Indium is currently used as ITO (indium-tin oxide) to provide transparent conducting films for a wide variety of consumer electronics devices, such as displays as well as touch screens of mobile phones and ipad-style portable computers. Recent introduction of bendable as well as flexible - and even stretchable – devices requires novel materials to replace ITO, due to its rigid nature.

Conducting polymers, carbon nanotubes, graphene as well as metal mesh and metal nanowires are being developed for flexible touch panel applications. Here we discuss both the properties and the market development estimates of flexible transparent conductors required in high quality touch sensor applications. In addition, we introduce our industrial scale, ISO 9001:2008 certified direct dry printing (DPP) manufacturing method for carbon nanotube based transparent conductors developed at Canatu Ltd. (<http://www.canatu.com>), enabling the manufacturing of TCFs with electrical properties on par with those of ITO-on-PET, and with optical properties better than those of ITO, metal nanowire and metal mesh. We also discuss the future developments of nanotube based thin film manufacturing technologies.