

Abstract Submitted
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Organic Light Emitting Diodes with Opal Photonic Crystal Layer and Carbon Nanotube Anode RAQUEL OVALLE ROBLES, MARIA DEL ROCIO NAVA, CHRISTOPHER WILLIAMS, MEI ZHANG, SHAOLI FANG, SERGEY LEE, RAY BAUGHMAN, ANVAR ZAKHIDOV, NANOTECH INSTITUTE UT-D TEAM, PHYSICS DEPARTMENT UT-D TEAM, CHEMISTRY DEPARTMENT UT-D TEAM, THE UNIVERSITY OF TEXAS PAN AMERICAN COLLABORATION — We report electroluminescence intensity and spectral changes in light emission from organic light emitting diode (OLEDs) structures, which have thin transparent films of opal photonic crystal (PC). The anode in such PC-OLED is laminated on opal layer from free standing optically transparent multiwall carbon nanotubes (T-CNT) sheets made by dry spinning from CVD grown forests. Silica and polystyrene opal films were grown on glass substrates by vertical sedimentation in colloids in thermal baths and the particle size of opal spheres ranges from 300 nm to 450 nm. The use of T-CNTs, (coated by PEDOT-PSS to avoid shorting) as hole injector, allows to eliminate the use of vacuum deposition of metals and permits to achieve tunneling hole injection regime from CNT tips into Alq³ emission layer

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