

Abstract for an Invited Paper
for the MAR05 Meeting of
The American Physical Society

Electroluminescent devices from ionic transition metal complexes

GEORGE MALLIARAS, Cornell University

During the last fifteen years dramatic advances have been achieved in the performance of organic light emitting diodes (OLEDs), and these devices can now be found in several consumer electronic products. A recent trend in OLEDs involves the use of ionic transition metal complexes as the electroluminescent layer. The mechanism of operation of OLEDs based on these materials is determined by a complex interplay between ionic and electronic charge. As a result of this interplay, efficient devices can be fabricated using air-stable electrodes. Moreover, large-area lighting panels that operate straight from the outlet without any additional circuitry can be fabricated. Materials issues that need to be addressed for these devices to succeed in applications will be discussed.