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ΕΚΤΑΚΤΟ ΣΕΜΙΝΑΡΙΟ

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ΘΕΜΑ: Polymeric Metal Chelate Assemblies in Light Emitting Diode Applications

ΤΟΠΟΣ: Αίθουσα Σεμιναρίων ΕΙΧΗΜΥΘ-ΙΤΕ

ΗΜΕΡΟΜΗΝΙΑ: Δευτέρα, 19 Φεβρουαρίου 2001

ΩΡΑ: 19:00

ΠΕΡΙΛΗΨΗ

Aluminum (III) 8-hydroxyquinoline (Alq_3) metal chelate, one of the most stable electron-transporting compound currently available, has been instrumental for the development of organic light-emitting diodes (OLEDs). Following a brief overview of the current status of OLED technology, the chemical and structural transformation leading to device deterioration will be discussed in lieu of the continuous strive to improve performance. Recent advances in metallorganic self-assembly of difunctional bisquinoline chelates with a variety of zinc precursors to form polymeric coordination assemblies are introduced. The potential of this method to produce insoluble and intractable structures of controllable supramolecular architecture suitable for semiconducting applications has stimulated an in-depth investigation of the growth mechanism of these polymeric chelates. The packing characteristics and growth coverage of these films originate from a number of Zn-mediated association mechanisms that are particularly important in yielding pinhole free assemblies. This is further extended into rare earth metal-chelating poly(urethaneurea-*block*-polyethylene oxide) copolymers based on 2,6-diaminopyridine. The combination of self-organization of block copolymers along with the well-defined emission characteristics of rare-earth metals is discussed in light of a wide range of applications of such chelates in photonic devices.

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