

Light Emitting Devices from Transition Metal Complexes

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Abstract

Transition metal complexes have emerged as promising candidates for applications in solid state electroluminescent devices. These materials serve as multifunctional chromophores, into which electrons and holes can be injected, migrate and recombine to produce light emission. Their device characteristics are dominated by the presence of mobile ions that redistribute under an applied field and assist charge injection. An efficiency of 10 lm/W –among the highest efficiencies in a single layer electroluminescent device– was recently demonstrated in an iridium complex. We present recent experimental results and discuss the issues that need to be addressed for these materials to succeed in display and lighting applications.

Biography

George Malliaras studied physics at the Aristotle University (Greece) and did his doctoral research in the University of Groningen (the Netherlands), on photorefractivity in polymers. Before joining the faculty at Cornell in July 1998, he was a post doctoral fellow at the University of Groningen ('96) and the Center for Polymer Interfaces and Macromolecular Assemblies (CPIMA), at the IBM Almaden Research Center ('97-'98). His research focuses on organic semiconductors and their device applications. He is a member of the American Physical Society and the Materials Research Society. He is the recipient of an NSF Young Investigator award and a College of Engineering Teaching award.