Chemical Engineering Graduate Seminar

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3:30 – 4:30 PM | February 17, 2004 | CPE 2.218

"Efficiency in Polymer Light Emitting Diodes"

The efficiency of polymer light emitting diodes (and of optically pumped polymer lasers) can be enhanced by taking advantage of the morphologies achievable in polymer blends through the possibility of multiple microconfinement of injected carriers in the chromophore phase domain. Also simplification of fabrication can be achieved by judiciously blending the transport layer and chromophore component(s) in a single layer architecture which provides superior performance dependent on the phase domain morphology of the system. In addition, when two or more polymeric chromophores are employed, Forster energy transfer from the larger band gap system can be used to enhance emission from the smaller band gap system again provided the correct morphology can be attained. When the charge transport facilitating moieties can also be covalently incorporated in the emitting chromophore(s) to produce enhancement, a combination of these strategies can be employed. The latest results of studies using blend architectures in PLEDs will be discussed.