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Multilayer polymer light emitting devices ZACHARY BARCIKOWSKI, ADAM THOMAS, MARIAN TZOLOV, Lock Haven University of Pennsylvania — The interplay of device layers and their interfaces is a major area of study in Polymer Light Emitting Devices (PLEDs). Many factors such as the degradation, efficiency, and overall performance depend on how these layers interact with each other. A fundamental understanding of the interfaces of these layers can lend to better performing devices using a multitude of organic polymers deposited in conjunction with each other in several ways. We have studied basic PLED devices in which we vary the emissive layer used, along with final bake temperatures. Devices include a glass substrate with Indium Tin Oxide anode, Aluminum cathode, and Plexcore Hole Injection layer. The active polymer films were spin casted from solution of MEH-PPV and PFO. Single layer and dual layers of several polymers are studied by examining current-voltage characteristics, film densities, impedance measurements, light emission, and efficiency calculations. We have found that not only do dual layers positively alter the performance of the device in the majority of cases, but the solvents in which each layer is originally in when deposited affects the formation of the interface, thereby altering the device mechanisms.

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