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**Hierarchical morphology to control energy and charge transfer in polymer blend light emitting diodes** KEITH HILLAIRES, THOMAS FER-  
RON, MICHAEL POPE, BRIAN COLLINS, Washington State University — With increasing efficiency, flexibility, and facile processing routes, organic light emitting diodes (OLEDs) are en route to replace their inorganic counterparts in lighting and displays. Blends of polymers can be used to enhance their performance and tune emissive colors in OLEDs through energy transfer to respective components. Nanostructure of those components is also important but has not been explored with as much detail. Here we use resonant and diffractive X-ray techniques to reveal the hierarchical morphology present in F8:F8BT polymer blend OLEDs. We find that energy and charge transfer processes resulting in photon emission are highly affected by the specific morphological state of the system, controlled by blend ratio and the concentration of processing additives. Such control over structure in OLEDs via simple processing variations will allow the tuning of optical and electronic performance in these novel devices.

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