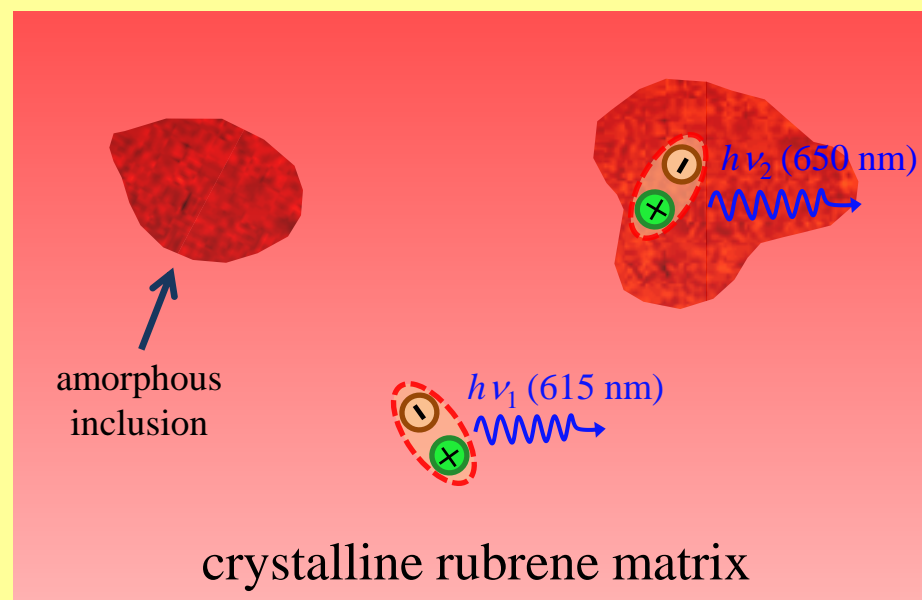
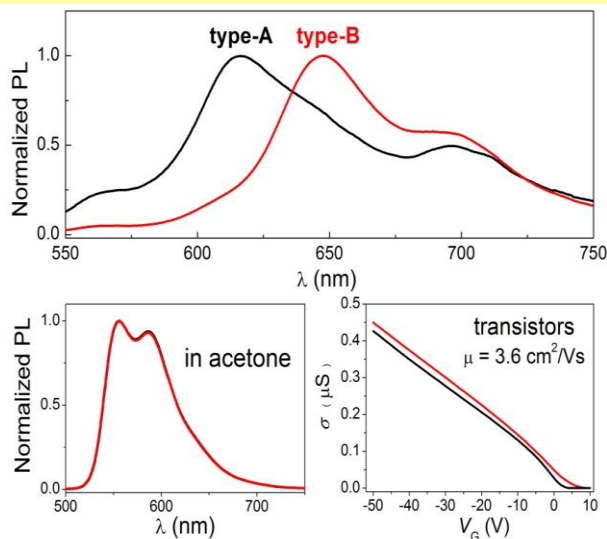
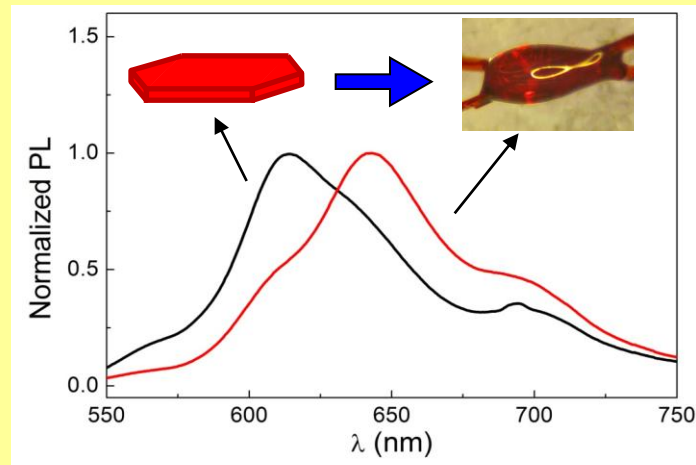


Effects of phase inhomogeneity and oxidation on photo-physical properties of rubrene (ACS PRF # 50629-DNI10).

Vitaly Podzorov, Physics Dept., Rutgers University, NJ



Commonly observed variations in photoluminescence (PL) spectra of crystalline organic semiconductors, including the appearance or enhancement of certain PL bands, are shown to originate from a small amount of structural disorder (e.g., amorphous inclusions embedded in a crystal), rather than be related to chemical impurities or material oxidation. For instance, in rubrene, a minute amount of such disorder can lead to the appearance of a dominant PL band at 650 nm as a result of triplet excitons captured and fused at these sites, with a subsequent emission from the amorphous phase.



Y. Chen, B. Lee, D. Fu and V. Podzorov, *Adv. Mater.* **23**, 5370 (2011)