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**Of Devices and Droplets: Evaporative Structuring of Solution-Processed Semiconducting Polymer Blends.** JASPER MICHELS, Max Planck Institute for Polymer Research — Many organic and hybrid thin film electronic devices (e.g. memory diodes, solar cells, light emitting diodes, transistors, capacitors) contain an active layer based on a blend of multiple polymeric or small-molecular species whose properties cooperatively give rise to a specific function. Depending on the desired functionality, phase separation during film processing is either encouraged or suppressed. It is often observed that during solution-casting droplet-like structures emerge due to liquid-liquid demixing, which may or may not be desirable. This presentation will focus on the role of demixing in thin film electronics by demonstrating how phase composition and morphology affect opto-electronic performance. Calculations based on mixing thermodynamics and results from dynamic phase field simulations will be placed in direct context with electronic processes in the thin film. Strikingly, the theoretical part of this study has led to novel fundamental insight concerning the influence of solvent evaporation on spinodal decomposition. We quantitatively show how both the early and late stages of demixing are affected by the composition drift imparted by evaporation, and why significant deviation from the classical laws governing structure formation is observed.

Jasper Michels
Max Planck Institute for Polymer Research

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