

## Novel Perovskite Processes for Solar Cells and LEDs

Perovskite materials have gained tremendous attention for various applications in optoelectronics due to their charge/photon conversion capability and simple fabrication via solution processing i.e. spin coating, spray coating, dipping coating, and roll-to-roll printing. As precursor inks are in liquid form, doping and compositional tuning are facile. Due to the fact that precursor inks solidify into perovskite thin films, solvent engineering techniques, which affect perovskite nucleation and growth during deposition and crystallization processes, become an important tool to achieve desired properties for specific applications. In this talk, we will discuss a number of solvent engineering techniques developed at our laboratory at Mahidol University like repeated cation doping, swift cation doping, mixed cation doping, vacuum-assisted deposition, vacuum-assisted crystallization, sequential spray deposition, and solvent tuning and explore how these novel techniques could help unleash full potentials of perovskite thin films for solar cells and LEDs.

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