

Abstract Submitted  
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**Nanoimprinting Perovskite by Hot Stamping for Improved Crystallinity and Morphology** BALASUBRAMANIAM BALACHANDRAN, ROSS HAROLDSON, YIXIN REN, ANVAR ZAKHIDOV, WENCHUANG HU, JULIA CHAN, Univ of Texas - Dallas, UTD NANOIMPRINT TEAM — We present an innovative approach of using thermal nanoimprinting lithography (NIL by hot embossing) to pattern hybrid perovskites into ordered micro and nanostructures with improved crystallinity and morphology. The spin-coated thin films of organic-inorganic perovskite  $\text{CH}_3\text{NH}_3\text{PbI}_3$  have been embossed by large area stamps of highly periodic nanopatterns at the scale of 200 to 600 nm. XRD shows the larger and aligned grains, while SEM reveals much improved film morphology with no pin-holes and much less grain boundaries. The obtained ordered periodic micro- and nanostructures show iridescent coloration due to Bragg scattering in planar perovskite photonic crystals.

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