Laminated perovskite solar cells compatible with roll-to-roll manufacturing

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Abstract (in 12 Pt Ariel Font)

Perovskite solar cells (PSCs) have been a growing area in thin film photovoltaic research with reported efficiencies increasing from 3.9% to 22.1% since 2009.[1, 2] There are multiple perovskite deposition techniques that are compatible for roll-to-roll manufacturing; however, there are not roll-to-roll compatible techniques to deposit metal oxide hole transport layers (HTLs) and electron transport layers (ETLs) onto perovskite. In this study, we propose a reactive lamination process that addresses several manufacturing and commercialization obstacles prevalent within perovskite manufacturing. The reactive lamination process involves reacting pre-deposited films of PbI2 and MAI resulting in adhesion between respective substrates. X-ray diffraction (XRD) patterns have confirmed perovskite formation as a result of this process; however, a high-performance PSC has not yet been recorded.

Biography of Presenter (in 12 Pt Ariel Font)

Blake Martin is a first-year doctoral student working under the guidance of Dr. Gautam Gupta and Dr. Thad Druffel. His research focuses on perovskite solar cells and materials and interfaces. He received his B.S. in Chemistry from Centre College in Danville, KY.

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2. Yang, S., et al., *Recent advances in perovskite solar cells: efficiency, stability and lead-free perovskite.* Journal of Materials Chemistry A, 2017. **5**(23): p. 11462-11482.