

# HIGH-SPEED PEROVSKITE LED FABRICATION BY INKJET PRINTING

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## Technology Description

Researchers in Chuan Wang's lab at Washington University have developed a method of fabricating perovskite LEDs (PeLEDs) directly on an elastic substrate more than 10X faster than existing methods. Each layer of the PeLED is patterned using a highly scalable inkjet printing process. These printed PeLEDs have a four-layer structure (bottom electrode, perovskite emissive layer, buffer layer, top electrode) without separate electron or hole transporting layers.

## Stage of Research

The researchers have produced these flexible PeLEDs with excellent robustness and stability even when bent to a curvature radius of 2.5 mm. They have also achieved a turn-on voltage of 3.46 V, max luminance intensity of 10227 cd/m<sup>2</sup>, and max current efficiency of 2.01 cd/A when printed in ambient conditions.

## Publications

- Zhao J, Lo L-W, Wan H, Mao P, Yu Z, Wang C. (2021). [High-speed fabrication of all-inkjet-printed organometallic halide perovskite light-emitting diodes on elastic substrates](#). *Advanced Materials*, 33(48): 2102095.

## Applications

- Fabrication of flexible perovskite LEDs (PeLEDs) for foldable displays, smart wearables, etc.

## Key Advantages

- Reduces fabrication time by 10X
- Highly scalable

**Patents:** Pending

**Related Web Links:** Wang [Profile](#) & [Lab](#)