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### **High-Throughput Printing Process for Flexible Electronics**

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Printed electronics is an emerging field for manufacturing electronic devices with low cost and minimal material waste for a variety of applications including displays, distributed sensing, smart packaging, and energy management. Moreover, its compatibility with roll-to-roll production formats and flexible substrates is desirable for continuous, high-throughput production of flexible electronics. Despite the promise, however, the roll-to-roll production of printed electronics is quite challenging due to web movement hindering accurate ink registration and high-fidelity printing. In this talk, I will present a promising strategy for roll-to-roll production using a novel printing process that we term SCALE (Self-aligned Capillarity-Assisted Lithography for Electronics). By utilizing capillarity of liquid inks on nano/micro-structured substrates, the SCALE process facilitates high-resolution and self-aligned patterning of electrically functional inks with greatly improved printing tolerance. I will show the fabrication of key building blocks (e.g. transistor, resistor, capacitor) for electronic circuits using the SCALE process on plastics.