

Abstract Submitted  
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**Low Temperature Transient Performance of Polymer Organic Light-Emitting Diodes**<sup>1</sup> KARL BURNETT, Naval Post Graduate School — Polymer Organic Light-Emitting Diodes (p-OLEDs) are conjugated polymers that conduct electric charges, enabling their use as semiconductors. Typical applications for p-OLEDs include high-resolution, high-efficiency displays, and when printed onto plastic substrates, thin and flexible patterned light sources such as vehicle dashboard displays and telephone keypads. We are investigating turn-on and turn-off transient effects in p-OLEDs that vary with temperature and the electrical driver. We have found that the turn-on transient is thermally activated, that light output is immediately proportional to current flow into the device, and that light emission continues from the device even after bias is removed. When these phenomena are fully characterized, they may explain transient effects seen in previous work, help describe the activation energies and rate kinetics in the device, and broaden the range of environments in which p-OLED devices may be used.

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