

Abstract Submitted
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Surface probe measurements of mix conductor KUO-YAO LIN, University of Texas at Dallas, BRADLEY HOLLIDAY OF UT AUSTIN, CHEMISTRY DEPARTMENT COLLABORATION, JASON SLINKER OF UT DALLAS, PHYSICS DEPARTMENT COLLABORATION — For the past few decades, the research and industrial application of solid state lighting has been very active. Besides widely-used light emitting diodes (LED) and well-known organic light emitting diodes (OLED), considerable research also focuses on light-emitting electrochemical cells (LEECs) due to their great efficiency, high luminance, and long life time from a simple device architecture. Efficient LEEC devices can be fabricated from a single layer of an ionic transition metal complex (iTMC) between two electrodes, considerably simpler than conventional OLEDs. Ruthenium and iridium complexes are two common iTMC materials used for LEEC devices, with iridium complexes yielding higher efficiency devices. The underlying physics of LEEC devices is not fully understood yet, and researchers have proposed both electrodynamic and electrochemical models to interpret LEEC dynamics. Additional measurements need to be done on LEEC devices to collect enough information to support either model. Scanning Kelvin Probe Microscopy (SKPM) of LEEC devices would reveal the surface potential profile and clarify the physics behind LEECs. Only ruthenium iTMC device surface potential profile measurements have been done before. This talk will focus on SKPM of iridium LEECs to study the physics behind the device.

Kuo-Yao Lin
University of Texas at Dallas

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