

RAD LAB SEMINAR

HIGH EFFICIENCY ORGANIC-INORGANIC HYBRID PEROVSKITE SOLAR CELLS AND LEDs

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WHEN

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WHERE

Rad Lab Auditorium



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Abstract: Organometal halide perovskites have been intensively studied as promising materials for solar cells and light emitting diodes due to their excellent semiconducting properties, broad range of light absorption, and high colour purity emission. Here we present advances in this field, such as the use of a novel self-organized hole transporting layer and its application to solution-processed lead halide perovskite solar cells and bright perovskite light-emitting diodes. Using the new hole transport layer, we demonstrate bright and efficient PeLEDs in a range of colours. We also report a systematic approach to achieve high-efficiency green perovskite LEDs in a simplified bilayer structure with comparable efficiency those of phosphorescent organic light-emitting diodes. Finally, we demonstrate a highly flexible perovskite LED based on a self-organized conducting polymer anode and the first large-area PeLED. These results show the great potential of perovskite LEDs in the display/lighting industries as an alternative for organic LEDs and quantum dot LEDs.