STABLE LEAD HALIDE PEROVSKITE RGB EMITTERS

Tech ID: 34684 / UC Case 2026-137-0

PATENT STATUS

Patent Pending

BRIEF DESCRIPTION

High-performance display technologies require light emitters that remain stable under intense operation while providing exceptional color purity. UC Berkeley researchers have developed stable metal halide perovskite red, green, and blue emitters that utilize both lead-based and lead-free materials. The technology relies on quantum dots integrated into specialized photoresist formulations. These formulations allow for the high-precision fabrication of patterned micro-light emitting diode devices with sub-micron pixel sizes.

SUGGESTED USES

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Micro-Light Emitting Diode Displays: Manufacturing ultra-high-definition screens for smartphones, wearable devices, and augmented reality headsets.

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High-Resolution Lithography: precise sub-micron patterning in semiconductor and display manufacturing.

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Advanced Optoelectronics: Creating stable light sources for high-intensity applications.

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Wearable Technology: Developing small, efficient, and bright light-emitting components for compact electronic consumer devices.

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Smart Lighting: Implementing stable red, green, and blue emitters for color-tunable and high-efficiency lighting systems.

ADVANTAGES

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Exceptional Stability

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High Resolution: Enables the creation of sub-micron pixel sizes, facilitating the development of displays with unprecedented pixel density.

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Material Versatility: Supports a wide range of halide materials.

CONTACT

Laleh Shayesteh
lalehs@berkeley.edu
tel: 510-642-4537.

INVENTORS

» Yang, Peidong

OTHER INFORMATION

CATEGORIZED AS

» **Optics and Photonics**

» All Optics and Photonics

» **Computer**

» Hardware

» **Engineering**

» Engineering

» **Materials & Chemicals**

» Nanomaterials

» Other

» Polymers

» **Semiconductors**

» Materials

» Processing and Production

RELATED CASES

2026-137-0

»

Process Compatibility: The photoresist formulations are compatible with standard semiconductor fabrication techniques and polymer processing.

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Vibrant Color Performance: Delivers the narrow emission peaks necessary for pure red, green, and blue light, resulting in a wide and accurate color gamut.

RELATED MATERIALS

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Methods to Produce Ultra-Thin Copper Nanowires for Transparent Conductors
- CO2 Upgrading into C2 Oxygenates with a CuAg Tandem Electrocatalyst
- Semiconductor-Based Photo Redox Catalysts For Sustainable Dehydrogenation Reactions

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