

Photoluminescent Cesium Lead Bromide Perovskite Quantum Dots/Cellulose Composite Production and its uses as Sensors

박범준, 강성민, 곽철환, 허윤석[†]
인하대학교
(yunsuk.huh@inha.ac.kr[†])

In this study, we demonstrate to develop a flexible light emitting device that improves the stability of the perovskite composite by incorporating a new polymer material. Various materials such as PDMS or PMA have been proposed to safely stabilize the material, but the cross-coupling properties of the materials that help to maintain the structure result in limitations in reducing the photoluminescence efficiency. Here, we present a cellulose-perovskite composite material that maintains both stability and luminous efficiency. Cesium lead bromide is produced using microfluidic systems. The perovskite synthesized through the microfluidic device is dropped into the cellulose solution and the surface of the particles is coated and stabilized. The size of the perovskite material is suitable for physical trapping and stable immobilization on the surface between the porous cellulosic fibers and does not require other procedures such as cross-linking for immobilization and additional heat treatment. The new cellulose-perovskite composite material, which is stable in the external environment, is expected to be used in various applications.