Title:	Lead halide perovskite and nobel metal nanocomposites: synthesis and property
Authors:	Bajaj, Neha
Keywords:	Lead Halide Perovskite Nanocomposites
Issue Date:	28-Jul-2021
Publisher:	IISERM
Abstract:	Perovskites have been on the headlines of current research due to the presence of exotic electrical and optical properties, phenomenal carrier transport characteristics, great photoluminescence quantum yield along with adjustable wavelength all across the visible spectrum, facile colour tunability, and improved stability. 1 The reported CsPbBr 3 perovskite is a well-known lead halide perovskite offering a great spectral range in the visible region. 2 In order to enhance its performance further, localized surface plasmon resonance (LSPR) produced by metallic nanoparticles can come handy. LSPR makes s use of metallic nanostructures to dramatically enhance the efficiency of radiative recombination in the active medium where electrons and hole combine. 3 Conducting metals when placed nearby a fluorophore can either increase or decrease the electric field felt by the adjacent fluorophore, which can, in turn alter the decay rate. 4 The modification in the decay rate is likely to produce various applications in optoelectronic devices by increasing the photostability and quantum yield. Herein, we prepared a nanocomposite of gold nanorod shelled by Silica with CsPbBr 3 inside the mesoporous Silica and compared its characteristics with mesoporous silica with CsPbBr 3 inside and Pd nanorods shelled with mesoporous Silica containing CsPbBr 3 inside it. Nanocomposite of Au@SiO 2 @CsPbBr 3 can pave its way to usage in LEDs. The comparison of it with SiO 2 @CsPbBr 3 will clearly illustrate the importance of plasmonic nanorod, and along with Pd@SiO 2 @CsPbBr 3. It will draw an insight on the effect of non- plasmonic material on this system in visible range, as outside visible range mainly in Ultraviolet and Infrared region Pd is plasmonic.
URI:	http://hdl.handle.net/123456789/3772
Appears in Collections:	MS-16

Files in This Item:

File	Description	Size	Format	
MS16013.pdf		3.09 MB	Adobe PDF	View/Open

Show full item record