

## Abstract

Salt matrix has recently been introduced as a promising robust platform for embedding colloidal quantum dots to provide them with photo stability for versatile applications. This work demonstrates the excitonic interaction amongst high efficiency colloidal InP/ZnS quantum dots embedded in a KCl salt matrix. By varying the donor acceptor ratio within the solid platform, 65% Förster Resonance Energy Transfer (FRET) efficiency was attained. Optimizing the donor : acceptor ratio, we demonstrated the first FRET-enabled Cd-free pellets for white light generation possessing a color rendering index (CRI) of 84.7, correlated color temperature (CCT) of 5347.5 K, and a high luminous efficacy of optical radiation value (LER) of 324.3  $\text{lm}/W_{\text{opt}}$ . Our study of excitonic interactions within quantum dot-loaded salt matrices will open new possibilities for future versatile optoelectronic applications.

