

Photochromic control of a plasmon–quantum dots coupled system, Gwénaëlle Lamri, Artur Movsesyan, Edite Figueiras, Jana B. Nieder, Jean Aubard^c Pierre-Michel Adam, Christophe Couteau, Nordin Felidj and Anne-Laure Baudrion ^{*}, **Nanoscale**, 2019,11, 258-265

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Abstract:

The control of quantum dot (QD) photoluminescence (PL) is a challenge for many applications. It is well known that plasmonic resonances can enhance this PL. In this work, we couple QDs with silver nanoparticles and immerse the system in a photochromic organic material. As these molecules are optical switches going from a transparent to a colored isomer by absorbing UV light, we observe on one hand a Förster Resonant Energy Transfer (FRET) between the QD emission and the absorbing isomer and on the other hand a plasmonic PL enhancement. The photochromic transition leads to the optical control of the FRET, allowing us to control the QD de-excitation preferences (radiative or non-radiative) and so the emitted light.

Graphical TOC :

