

THE INFLUENCE OF BIOMOLECULES
ON THE LUMINESCENCE OF DEFECTS
IN CdSe/ZnS QUANTUM DOTS

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S u m m a r y

The influence of bio-conjugation on photoluminescence (PL) spectra of CdSe/ZnS quantum dots (QDs), including the luminescence related to defects in quantum dots or at their surface is investigated. It is shown that the luminescence spectra of defects contain two bands. One of them can be ascribed to the recombination of electrons from the energy level of a quantum dot to the level of a Cd vacancy. Another one can be connected with the carrier recombination through donor-acceptor pairs. It is found that the bioconjugation results not only in a high-energy shift of the luminescence band caused by the exciton recombination in quantum dots but also in an increase of the contribution of the defect emission to luminescence spectra. It is shown that the contribution of different defects increases in different ways. The changes in defect emission spectra are explained by an increase of the number of corresponding luminescence centers.