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**Optical properties of quantum dot systems** VICTOR BONDARENKO, WSU, YANG ZHAO — Interlevel electromagnetic response of different quantum dot (QD) systems is theoretically investigated within the self- consistent field approach. It is shown that the Coulomb coupling must be taken into account for correct description of optical spectra of the systems. Fundamental importance of the problem of the electron self-interaction in QD systems is established. It is shown that the shape of QD can dramatically affect the spectra, in particular, depending on the polarization of incident radiation and number of electrons in the dot. It is found that the effects of the intradot and interdot Coulomb interactions on the response can be analyzed separately. It is established that the approximation of the point dipole-dipole interaction can be used for adequate representation of the dynamic interdot electron-electron interaction in the lattice. Also it is shown that the approach of the modified oscillator strength very well reproduces the absorption spectra of the considered systems with interacting modes of the collective excitation.

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