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Variations of non-linear optical properties and susceptibility with layer thicknesses of CdS/ZnS/CdS/ZnS multilayer quantum dot

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Highlights

- This work theoretically investigates the role of susceptibility on the optical properties of quantum heterostructure for inter band and intra band transitions.
- In the intra-band transition, the nonlinearity dominants over the linear absorption, which is almost constant in most of the cases. But in inter-band transition, both linear and nonlinear terms vary almost symmetrically.
- The changes in linear absorption coefficient with the variations of layer thicknesses are proportional to the product of incident frequency and susceptibility, while the same for third order nonlinear absorption is identical to the changes of susceptibility, for both inter and intra band transitions.