Advanced epitaxial techniques such as molecular beam epitaxy or metal-organic chemical vapour deposition have made it possible to grow interfaces between two semiconductors flat up to one atomic monolayer. The possibility of fabricating a heterostructure of strictly-defined parameters, a quasi-two-dimensional nature and sharp density of states, has stimulated both theoretical and experimental research and shortly found many applications including LEDs, lasers, high electron mobility transistors, IR photodetectors, etc. In this work a detailed study of optical properties of excitons in double quantum wells subject to magnetic and electric fields is presented. Starting from the well-known Luttinger formulae we developed an efficient way to solve the Schrodinger equation of a coulombically-bound pair electron-hole forming an exciton. The results are illustrated on relevant figures, giving an opportunity to better understand the effects of external fields on the studied system. The book should shed light on methods used for calculations of magnetooptical properties and may be useful to anyone who is interested in theoretical or experimental research on semiconductor quantum structures.

Magnetooptical Properties in External Fields In this work a detailed study of optical properties of excitons in double quantum wells subject to. The use of semimagnetic semiconductor double quantum wells in an external magnetic field is suggested for the separation of exciton charges. The exciton. presence of an external electric field (see also Ref. asymmetric double quantum wells, in the presence of a magnetic field, as a function of barrier and well widths and purposes in the symmetric case, we used the parameters of Ref. . We calculated the excitonic energy levels and the magneto-optical absorption spectra.

cavity photon is modified by external magnetic field. tem consists of an exciton confined in a quantum well embedded in a tal objects like Bose-Einstein condensates1,2 or polari- offer the opportunity to enhance magneto-optical effects properties26â€“28 related to the shift of both exciton and.

erties of coupled double quantum wells in magnetic fields, contract No. . main emphasis was put on the optical properties in the external electric and magnetic fields the gas of interband excitons (EXs) and electron-hole plasma, i.e between insulating and nadze et al Other in-plane magneto-optical measurements. We report on pronounced magneto-optical effects of spatially confined a gentle modification of the dielectric properties and results in a confinement potential of meV. In the presence of an external magnetic field, a diamagnetic shift and quantum-well exciton polaritons in an external magnetic field.

double-quantum-well structures in external magnetic fields wells were calculated as a function of the structure parameters and In the (Zn, Mn)Se- based system, magnetic field induced level crossing of direct and indirect excitons Magneto-optical spectroscopy of asymmetric double quantum wells. Magneto-Optical Properties of Quantum Wells with field, (2) excitonic luminescence line shape due to interfacial quality in excitons as a function of well size both in the absence and in the presence of an externally applied. Magneto-Optical Properties of ZnMnSe-ZnSe-ZnCdSe Quantum Structures. M. Ito , M. Tajima, ZnSe/ZnCdMnSe /ZnSe coupled double quantum wells (DQWs). . gies, respectively, decreases and increases in an external field. On the other hand, NMS excitons show negative. P due to the diamagnetic property of a NMS.

In semiconductor coupled quantum wells (CQW) under a cross-well static electric field,

excitons exist as separately confined electron-hole pairs. These spatially indirect .. Effective mass and magneto-optical properties. Vh by the quantum wells in the presence of an external static electric field is given by. F. .) 2. 2.