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Diamagnetic Exciton Properties in Asimetrical Quantum Dot Molecules NELSON RICARDO FINO PUERTO, HANZ RAMIREZ, ANGELA CAMACHO BELTRAN, Universidad de los Andes, GRUPO DE MATERIA CONDENSADA - UNIVERSIDAD DE LOS ANDES TEAM — The magnetic properties of nanostructures like quantum dots and rings are the subject of intense research. In particular, magnetic control of coupled quantum dots has become subject of interest. By using a first order perturbation approach, and within the effective mass approximation, we calculate magnetic field dependent electronic structures of confined excitons and trions in vertically coupled quantum dots. With these results we study the photoluminescence spectra of neutral and charged excitons in these structures that are coupled via magnetic field in the Faraday configuration (quantum dot molecules QDM). In this work study this spectra around three charge configurations: neutral exciton (X), positive trion (X^+) and negative trion (X), where the charged can be distributed over any of the dots in the basis of the optically active excitons and tunneling electron through the interdot barrier. Also we study different different ratios between the dots, that allow the appearance of crossings and anticrossings in the behavior of the energy with respect to the magnetic field.

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