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Indirect three dipolar bosons in quantum dots

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Multi exciton production is a process that can occur in two dimensional (2D) quantum dots (QD) by which the energy of an absorbed photon can be used to create one or more excitons.. In coupled quantum wells where the electrons and holes are separated in the two adjacent layers, all the indirect, the exchange effects are significantly covered up by the dipole-dipole repulsion, so dipole excitons can be treated as Bose particles. In the frame of indirect excitons, biexciton (2X) is a two body system which haswell studiedand triexciton (3X) is a three body system. To our best knowledge, quantum three body system of two-dimensional trapped dipoles no further were not well studied. In this presentation binding energy and structure of indirect three dipolar bosons in a parabolic trap will be investigated using the hyperspherical function method and study how the crystal- like phases are formed in the system.

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Green synthesis and antibacterial activity of novel azomethines

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Green Chemistry is the design of chemical products and processes that reduce or eliminate the use and/or generation of hazardous substances. Solvents are auxiliary materials used in chemical synthesis. The development of green chemistry redefines the role of a solvent; the only natural solvent on earth is water. It is obvious that water is the most inexpensive and environmentally benign solvent.In the present study a series of azomethines (C-1 to C-6) were synthesized from β-phenyl acrolein moiety using various aromatic amines using water as green solvent instead of hazardous chemicals. The increased incidences of severe opportunistic bacterial infections in immunological deficient patients together with the development of resistance among pathogenic gram positive and gram negative bacteria, motivated investigators to find some newer molecules that may be effective against antibiotic resistant bacteria. The synthesized compounds were further characterized and screened for antibacterial activity by test tube dilution method and disc diffusion method using gentamycin as standard drug. The antibacterial study revealed that the minimum inhibitory concentrations of C-5 and C-6 were found to be potent when compared to standard drug gentamycin against gram positive bacteria (*B. subtilis* and *S. aureus*) and gram negative bacteria (*P. aeruginosa* and K. pneumoniae). Apart from this, the minimum inhibitory concentration of compounds C-3 and C-4 also showed their high potential against *B. subtilis* and *P. aeruginosa* respectively. All the six azomethines showed good activity against *S. aureus*. The antibacterial potency of newly synthesized compounds is attributed to the presence of azomethine linkage in the molecules.

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