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**Triexciton as a system of the three dipoles in a trap** SHALVA TSIKLAURI, JOEL HERNADEZ, Borough of Manhattan Community College - CUNY — 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 additional excitons instead of being wasted as heat. This effect has received considerable interest because it has the potential to significantly improve the performance of solar cells, nanocrystal lasers, and high speed electronic devices. Cooling the excitons has become possible by confining electrons and holes in separate two dimensional (2D) quantum wells, which extensively increases their lifetime. 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 is well studying and triexciton (3X) is a three body system. To our best knowledge quantum three body systems 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 investigate using the hyperspherical functions method and study how the Efimov and crystal- like phases are formed in the system.

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