

Abstract Submitted
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Optically Excited Exciton Transfer of Spherical Quantum Dots via Optical Near-Field Interactions TOGAY AMIRAHMADOV, Bilkent University, PEDRO LUDWIG HERNANDEZ MARTINEZ, HILMI VOLKAN DEMIR, Bilkent University, Nanyang Technological University — We study a system composed of a mixture of different-sized spherical quantum dots (QDs) involving optical near-field (ONF) interactions to induce effective optical excitation transfer. Here energy transfer was explained by resonant energy transfer via the optical near-field interaction between the first excited state of small QDs and the second excited state of large QDs. The energy transfer in a film of different-sized QDs made of CdTe and CdSe were experimentally demonstrated. An analysis between the optical near field transfer rate [1] and Förster type transfer rate was made. The proper understanding of the exciton transfer between these QDs is important for the design and implementation of near-field photonic devices employing them. [1] M. Ohtsu, et al., Principles of Nanophotonics, CRC Press (2008).

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