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Quantum dots tailored with water soluble conjugated polymer
JUN XU, Materials Science and Engineering Department, Iowa State University, JOSEPH SHINAR, Physics and Astronomy Department, Iowa State University, ZHIQUN LIN, Materials Science and Engineering Department, Iowa State University — Placing the conjugated polymer (CP) in direct contact with the quantum dot (QD) offers advantages over cases where QD aggregation dominates. Such quantum dot- conjugated polymer nanocomposite (QD-CP) possesses a well-defined interface, thereby significantly promoting the charge or energy transfer between these two components. Here we demonstrate an approach to graft water soluble, negatively charged conjugated polymer, MPS-PPV from CdSe QD surfaces. The conjugation length of the MPS-PPV is adjustable by varying the ratio of co-solvents used. The photophysical properties of the nanocomposites in nanoscopic confined geometries are studied.

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