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Hybrid Exciton in a Semiconductor Nanorod Coated By an Organic Shell[1] DANIEL VELAZQUEZ, HUONG NGUYEN, Marshall University — We study the Wannier Mott-Frenkel hybrid exciton in a nanorod coated by a thin organic shell. Using the wavefunctions of the 1D Wannier-Mott and the Frenkel exciton, we obtain the wavefunctions and energy of the hybridization state. The new exciton state is a linear combination of the basic exciton states and is smoothly distributed over the whole system. The hybridization depends strongly on the coupling (hybridization) parameter as well as the shape of the nanorod and the thickness of the organic layer.

[1]WV NASA Space Grant Consortium and MU NASA Space Grant Advisory Committe, MU COS, MU Physics Dept.

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