Theoretical investigation for the enhanced absorption of nanostructured semi-conductor materials

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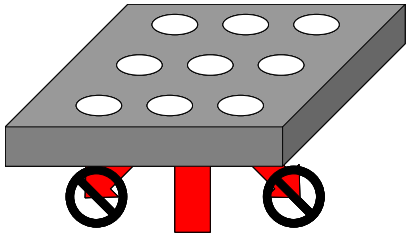

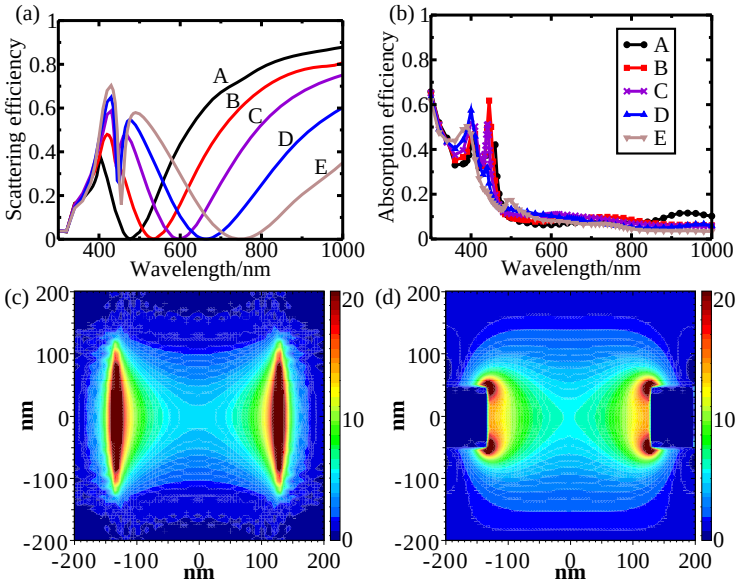

1. Extremely low scattering efficiency of a perforated silver film: Using the discrete dipole approximation method, we found that extremely low scattering cross section can be achieved at tunable wavelengths and widths using a perforated 100 nm thick silver film.

2. Electric field confinement and enhancement between two silver layers: We demonstrated enhanced electric fields $|E|^2$ 100 nm from the metal surface, which can be utilized to improve the emission intensity of quantum dot.