Supporting information

Enhancing molecule fluorescence with asymmetrical plasmonic antenna

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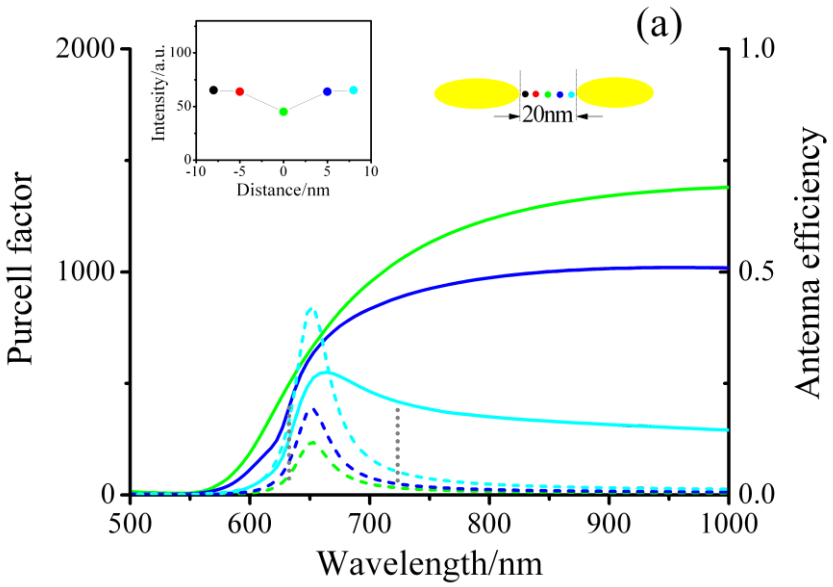


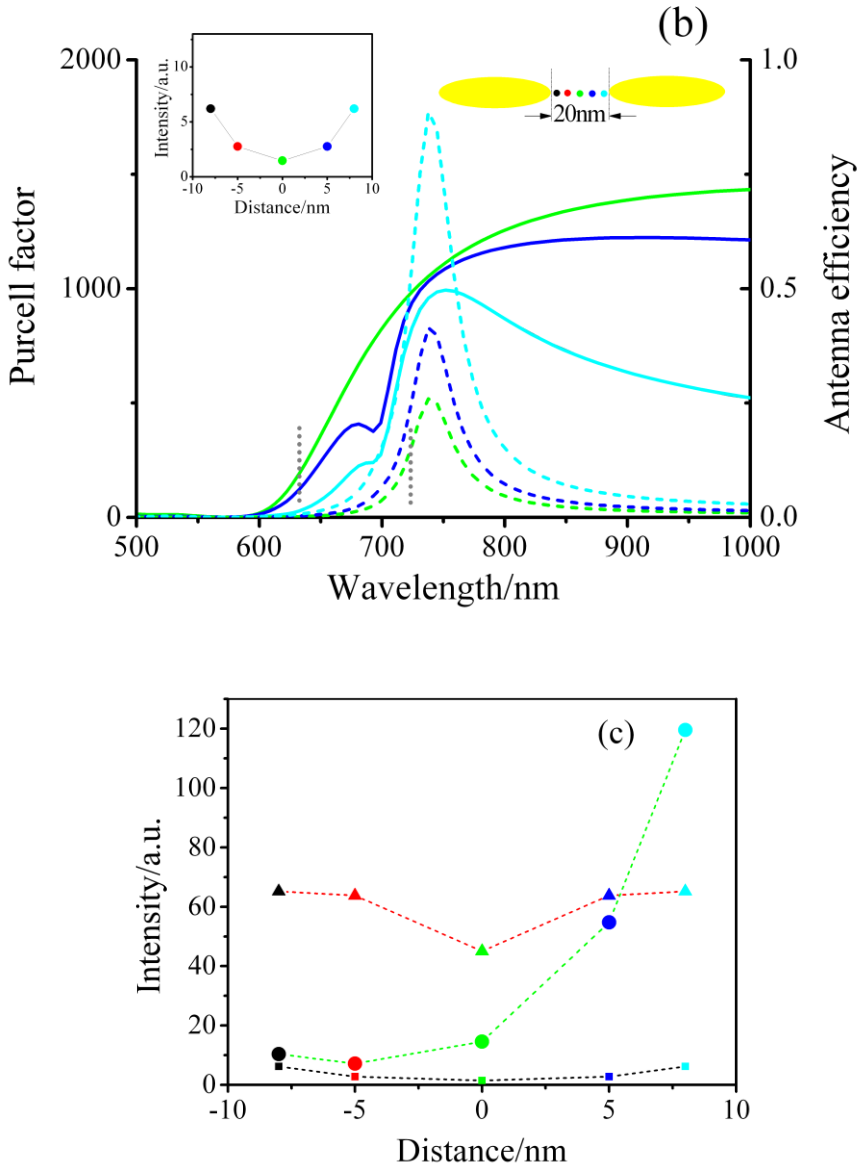
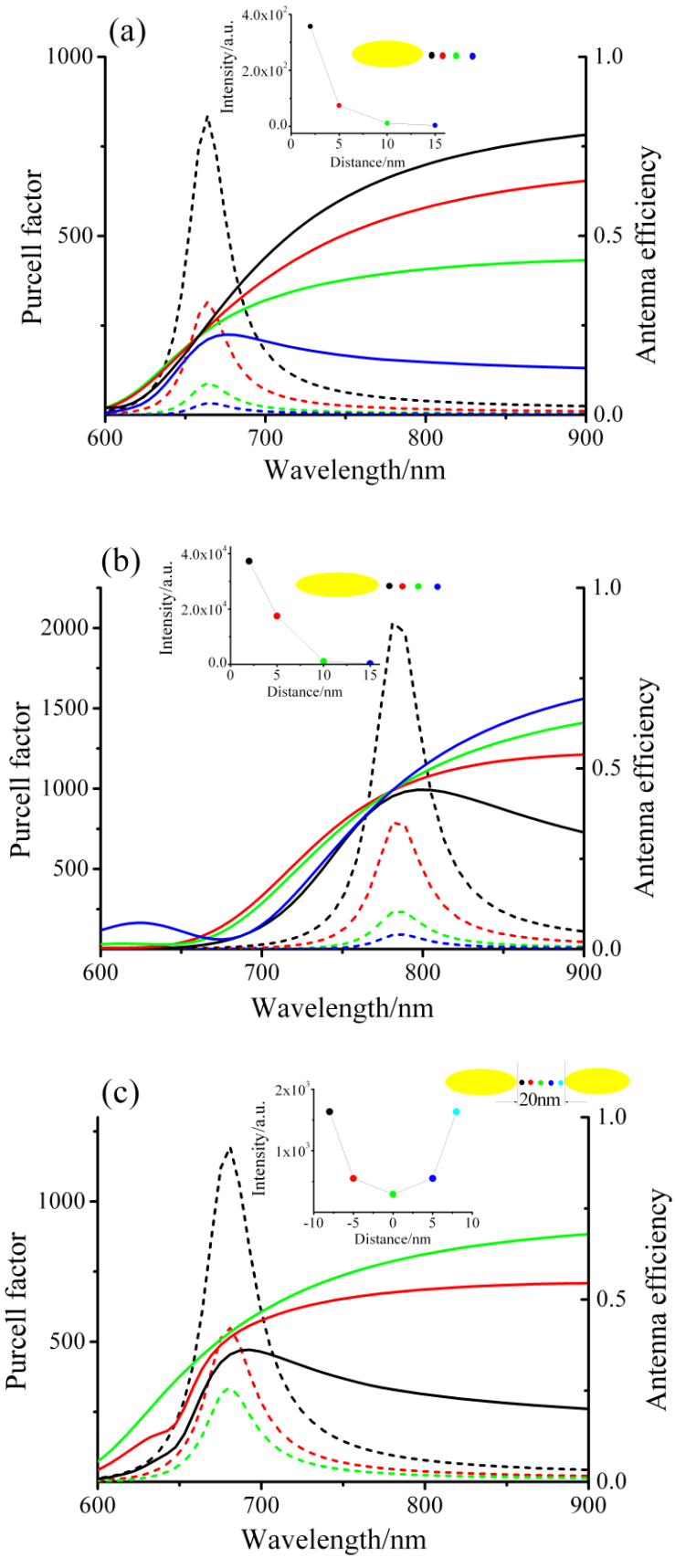


Figure S1. Antenna efficiency η_a (solid line) and the normalized Purcell factor F (dash curves) as a function of wavelength. An emitter is placed within the gap of symmetrical antennas, i.e. Rods-L45-L45 (a) and Rods-L60-L60 (b) at different emitter-antenna separations of 2 nm, 5 nm and 10 nm respectively. The inserts show the corresponding relative fluorescence intensities, i.e. $S / S_0 \propto F_{(\omega)} \cdot \eta_{a(\omega)}$, at different distances. The gray straight lines indicate the wavelength of excitation and emission as above. (c) for comparison, the corresponding relative fluorescence intensities within the gap for three antennas are plotted together as a function of emitter-antenna separation.



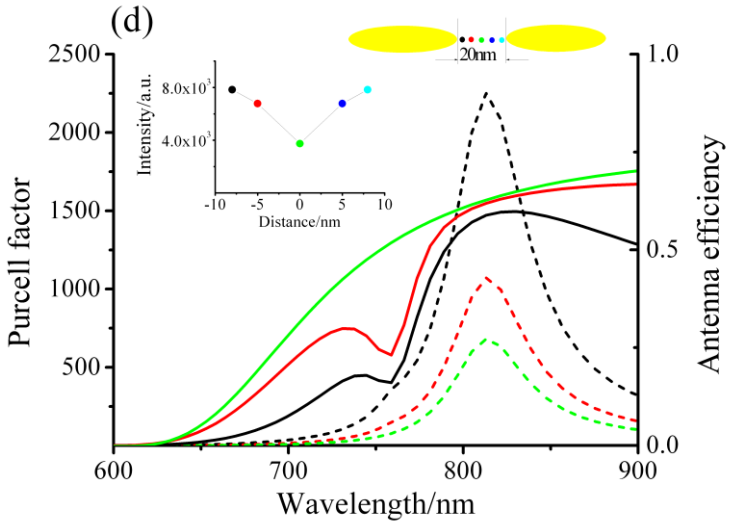


Figure S2. Antenna efficiency η_a (solid line) and the normalized Purcell factor F (dash curves) as a function of wavelength at different positions. An emitter is coupled either to the single gold nanorod Rod-L50 (a) or to the Rod-L72 (b) with different emitter-antenna separations of 2 nm, 5 nm, 10 nm and 15 nm. And an emitter is placed within the gap of symmetrical antennas, i.e. Rods-L50-L50 (c) and Rods-L72-L72 (d) at different emitter-antenna separations of 2 nm, 5 nm and 10 nm respectively.