* re: comment 1 - Thank you for finally including some references, although not all of these are pertinent to the work here. The authors should provide more detail on the mechanism by which plasmonic resonance is enhances PL emission, based on matching of plasmonic resonance and QD emission spectra. Intuitively enhanced (plasmonic) absorption would simply mean that more emitted light (from the QD) would be re-absorbed and not be seen. Digging into the supplied references, and then into the papers *they* reference, it looks that the mechanism indeed is an enhancement of the emission quantum yield. Ideally the authors should calculate and report PLQY for each of their samples. At the very least they need to convince the reader that their samples are directly suitable for semi-quantitative comparison. The authors still need to measure and report the absorption(s) at 325 nm (where they excite their QDs) to verify that the enhancement is due to the proposed phenomenon, rather than other optical effects.

Thanks for the Reviewer’s excellent evaluation. To verify the enhancement of PL, we measure the absorption spectra of all samples from 200 to 900 nm in Figure S1. From the picture, we can see that there is no obvious absorption at 325 nm. So, the enhancement of PL is due to the surface resonance of Au nanoshell arrays.

Figure S1 the absorption spectra of all samples from 200 to 900 nm

In addition, we calculate the relative fluorescence quantum efficiency of QDs based on monolayer Au nanoshell arrays according to the procedure:

\[ Y_u = Y_s \* \frac{F_u}{F_s} \* \frac{A_s}{A_u} \* \left( \frac{n_u^2}{n_s^2} \right) \]

\( Y_u \) and \( Y_s \) represent the fluorescence quantum yields of the measured substance and the reference substance, respectively; \( F_u \) and \( F_s \) represent the integral area of fluorescence emission spectra corresponding to the measured substance and the reference substance under the excitation wavelength; \( A_s \) and \( A_u \) indicate the absorbance of the reference substance and the
measured substance at the excitation wavelength; $n_u$ and $n_s$ indicate the refractive index of the measured substance and the reference substance. However, we fabricate the QDs film on Au nanoshell arrays, which is different with QDs solution. For QDs film based on 500 nm monolayer Au nanoshell arrays, fluorescence quantum efficiency reaches to 8.3%. The others are 6.4% and 3.2% respectively.

* re: comment 5 - the authors have not added any additional experimental detail as requested. Please clarify what you mean by "intrinsic absorption (adsorption?)". It appears that the patterned gold layer on a glass substrate has the same absorbance as the glass alone at this wavelength (500 nm). Is this correct? A quick lit search shows others measuring the absorbance of 20 nm gold films (eg https://arxiv.org/ftp/arxiv/papers/1409/1409.7338.pdf) with an absorption in excess of 70% of incident light, even at the lowest point.

Thanks for the Reviewer’s excellent evaluation. We are so sorry for the error statement of “adsorption”. To clarify the absorption of 20 nm Au film, the absorbance of 20 nm gold films is measured by A UV-visible spectrophotometer. Figure S2 shows the absorption spectrum of 20 nm Au film. From the result, we can see that there is the absorption valley at nearby 500 nm. This result is in accord with Au nanoshell arrays. So, we deduce that the absorption valley at 500 nm is same properties for 20 nm Au film and Au nanoshell arrays.

![Figure S2](image.png)

Figure S2 the absorption spectrum of 20 nm Au film

* re: comment 6 - The fact remains that the authors have not presented absorption spectra at the excitation wavelength used in PL experiments. There is no way for the reader to know how much difference there is in the light being harvested between samples.

Thanks for the Reviewer’s kind suggestion. We have measured absorption spectra at 325 nm in Figure S3, which is the excitation wavelength used in PL experiments. The results show that there is not obvious absorption peak at 325 nm. The relative absorb intensity of 500 nm Au nanoshell arrays is higher that others from Figure S3.
* re: comment 8(b) - the 'weak' PL here is still more intense than the sample without the plasmonic resonator, which does not display the > 620 nm uptick.

Thanks for the Reviewer’s excellent evaluation. The ‘weak’ PL does not display the > 620 nm, one reason is that the excitation wavelength is 325 nm and the second harmonic peak is 650 nm, this results in the uptick PL beyond 620 nm; the other reason is that the weak fluorescence of Au nanoshell arrays results in uptick. So, we can only measure the PL from 500 nm to 630 nm.