

## Supplementary Information

# Plasmon Resonance Energy Transfer and Plexcitonic Solar Cell

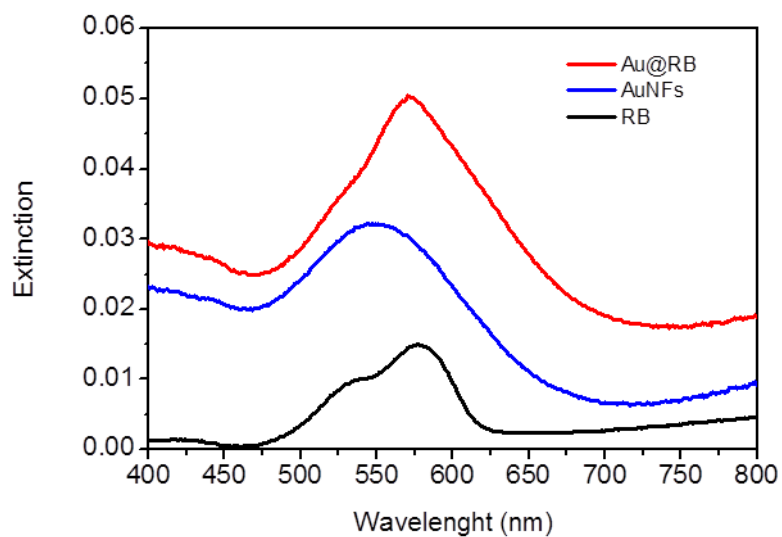
*Fan Nan,<sup>‡a</sup> Si-Jing Ding,<sup>‡a</sup> Liang Ma,<sup>‡a</sup> Zi-Qiang Cheng,<sup>a</sup> Yu-Ting Zhong,<sup>a</sup> Ya-Fang Zhang,<sup>a</sup>*

*Yun-Hang Qiu,<sup>a</sup> Xiaoguang Li,<sup>\*b</sup> Li Zhou,<sup>\*a</sup> and Qu-Quan Wang<sup>\*a,c</sup>*

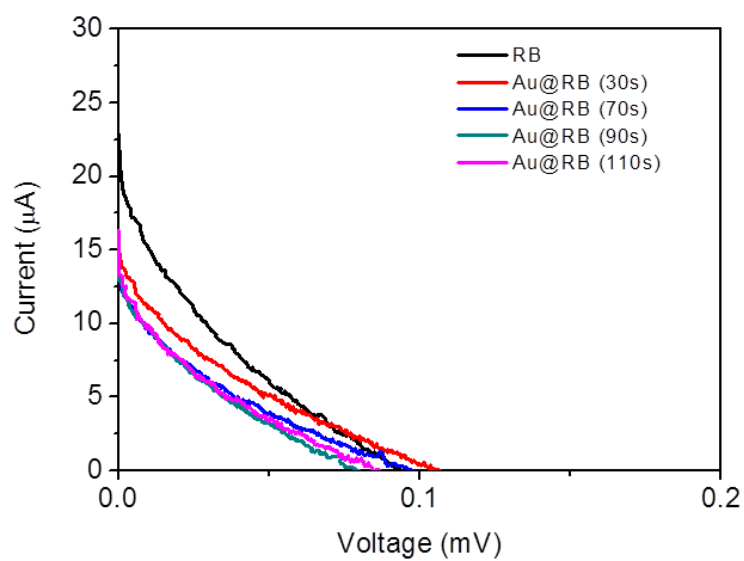
<sup>a</sup>Key Laboratory of Artificial Micro- and Nano-structures of the Ministry of Education and School  
of Physics and Technology, Wuhan University, Wuhan 430072, P. R. China

<sup>b</sup>Institute for Advanced Study, Shenzhen University, Shenzhen 518060, P. R. China

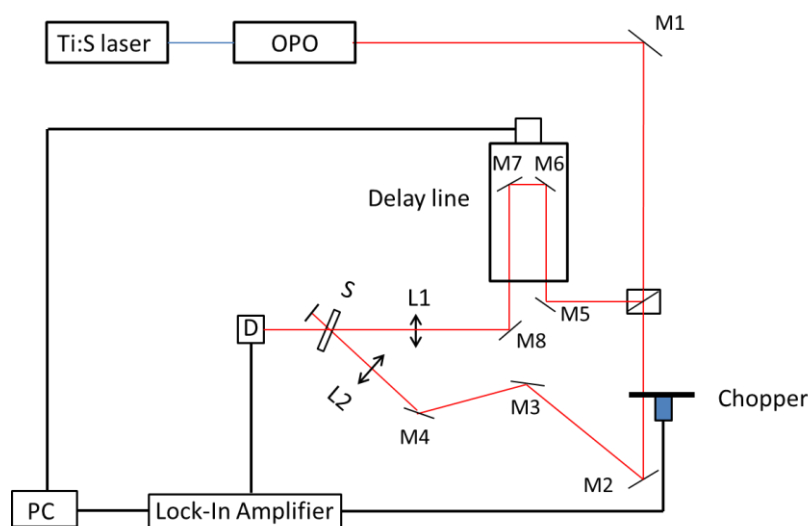
<sup>c</sup>The Institute for Advanced Studies, Wuhan University, Wuhan 430072, P. R. China



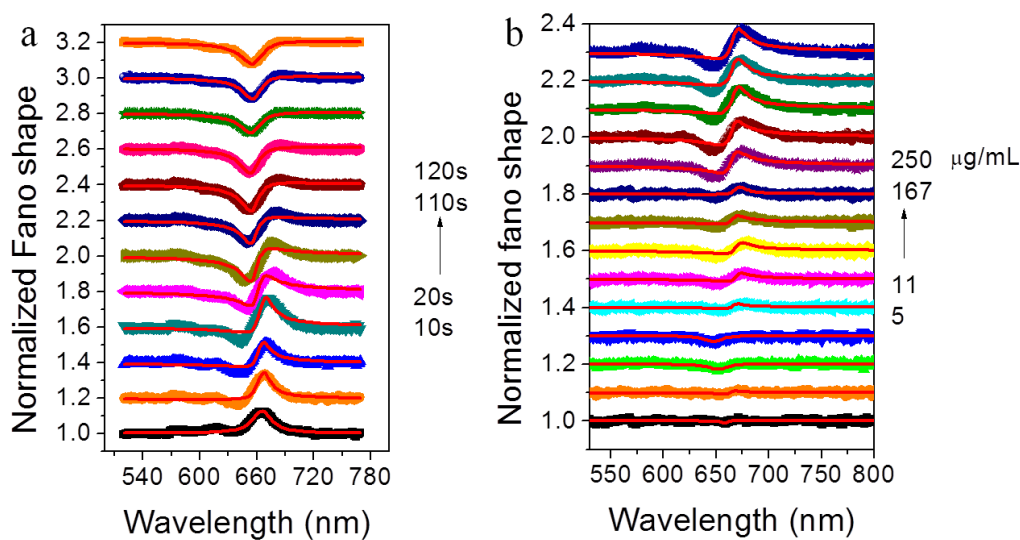
**Figure S1.** Extinction spectra of the reference sample of Au@RB hybrid, which does not exhibit Fano resonance. The extinction intensity of RB is set to be comparable with that of Chl.



**Figure S2.**  $I$ - $V$  curves of the reference samples of Au@RB-SSCs.



**FigureS3.** Schematic of the Pump-Probe experimental setup. M = mirror, L = lens, D = detector, S = sample.



**Figure S4.** The normalized Fano shape of Au@Chl hybrids with varied SPR (a) and varied  $\mu_{\text{dye}}$  (b). The normalized Fano shape ( $\sigma_{\text{dye@Au}}(\nu)/\sigma'_{\text{Au}}(\nu)$ ) of each Au@Chl absorption spectrum is fitted by

the function (red lines)  $f(\nu) = \left\{ (1 - a_F) + a_F \frac{[h(\nu - \nu_0) + q\gamma]^2}{[h(\nu - \nu_0)]^2 + \gamma^2} \right\}$ , from which we extract the  $q$  and  $a_F$

parameters.