List of responses

**1**. In Fig. 2S could be concluded that samples probably have among direct, few
indirect band-gaps
Please comment.

Response: Thank you for the observation. The anatase structure of TiO2 has only an indirect band gap, while the rutile structure has a direct band gap of 3.06 eV and an indirect one of 3.10 eV. Thus, the chapter was reformulated as follows: An indirect band gap for anatase TiO2 structure has been previously determined.[47](#_ENREF_47) The optical band gap for the pure and assisted rheological TiO2 films was obtained by extrapolating the linear portion of the (αhυ)0.5 versus hυ curve to the hυ axis (Fig. S-2).

**2.** Row 310 Under illumination, the cell generated a long open circuit
Reviewer: high open circuit voltage?

Response: Yes, the sentence is now expressed as: Under illumination, the cell generated a long open circuit voltage (*Voc*=668 mV),

**3.** Row 535 Fig. 7Error! Reference source not found.(c)).

Response: The error was corrected

4. Reviewer: Does the author consider to include band gap structure, figure or
descriptive, mentioning CB and VB positions, especially CB of dye and TiO2
(electron sink?)

Response:

An additional supplementary Fig S-4 was added following your suggestion. The next paragraph was also included: Under illumination, the N-719 dye molecules anchored on TiO2 surface absorb the simulated sun light 1.5G AM promoting one electron from the HOMO to LUMO level of dye, then the electron is transferred to the conduction band of TiO2 as showed in Fig. S-4.