Electronic Supplementary Information

Cellulose nanocrystals as host matrix and waveguide materials for recyclable luminescent solar concentrators

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Calculation of optical efficiency

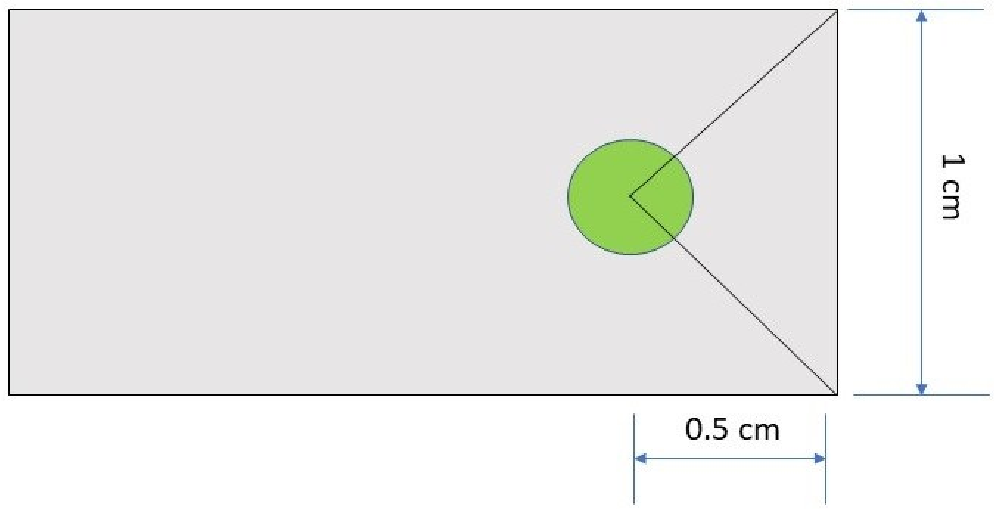

Fig. S1. A Schematic showing the collection angle of photons.

In the experiment, we extracted the photons from only one edge of the sample. This edge from which we extracted the photons has a dimension of 1 cm and when we shine light on our sample and focus on a point which is 0.5 cm away from this edge, emitted photons with a collection angle 90 degree or lower get detected by the detector.

$\tan \Theta = 0.5/0.5$

$\Theta = 45°$ and hence $2\Theta = 90°$.

Assuming we have an isotropic emission, the optical efficiency values at 0.5 cm were multiplied by 4 and to maintain consistency, rest of the values were also multiplied by 4 which we deem as the maximum optical efficiency that can be achieved by extracting photons from four side edges of the sample.

Transmission and reflection data of un-doped CNC and APE samples

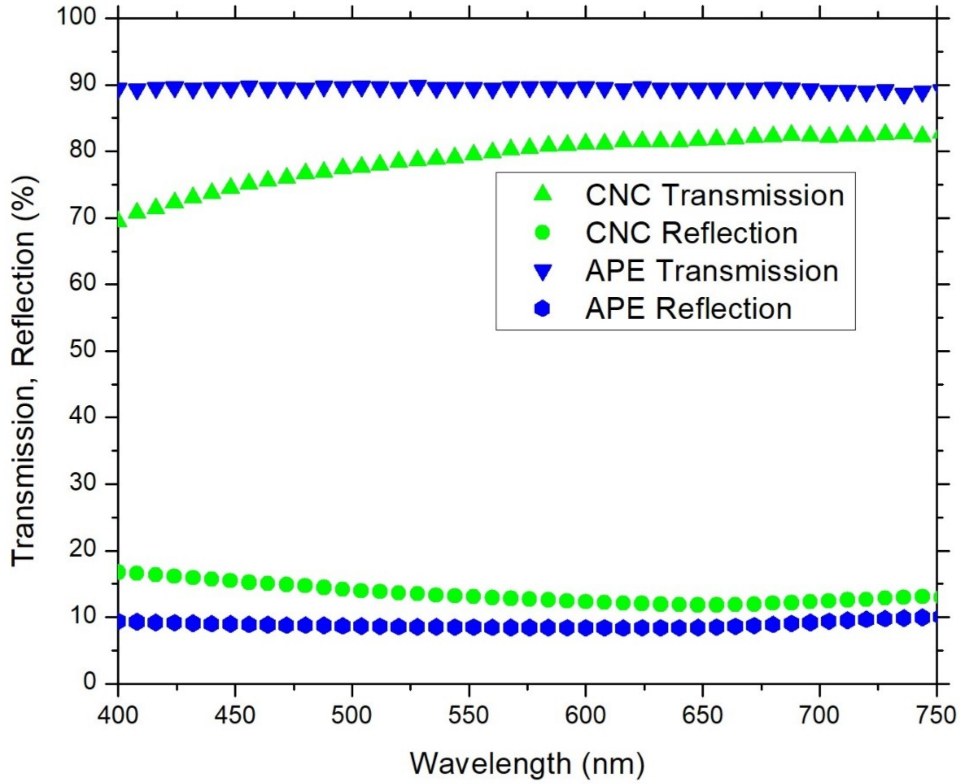

Fig. S2. Transmission and reflection data of un-doped CNC and APE samples.

Fig. S2 shows the transmission and reflection data of CNC and APE samples without the presence of dyes.