Supplementary Information for

Direct Solar Thermochemical Conversion of Methanol into Syngas via Nanocatalyst at Lower Temperatures

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The photo thermochemical experiment using the commercial catalyst (purchased from Sichuan Shutai Chemical Technology Co.LTD.) is performed under the same situation. This commercial catalyst has the same component as our nanocatalyst and its mean particle size is about 3 μm. Fig. S1 shows the photo thermochemical performance of the as-prepared nanocatalyst and the commercial catalyst. It shows that the as-prepared nanocatalyst obtains a more favourable photo thermochemical performance.

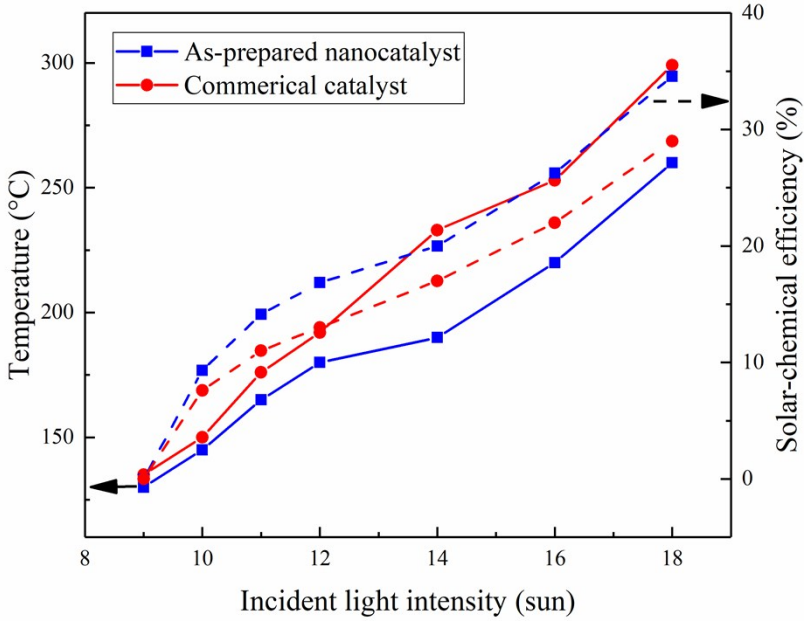

Fig. S1. The photo thermochemical performance of as-prepared nanocatalyst and commercial catalyst under the same experimental situation.

Fig. S2 shows the XRD patterns of the as-prepared catalyst and the catalyst used for 20 h. As can be seen, there are no additional peaks with the used catalyst, which indicate that there is no obvious carbon formation on the catalyst surface. This result demonstrates the good stability of as-prepared catalyst.

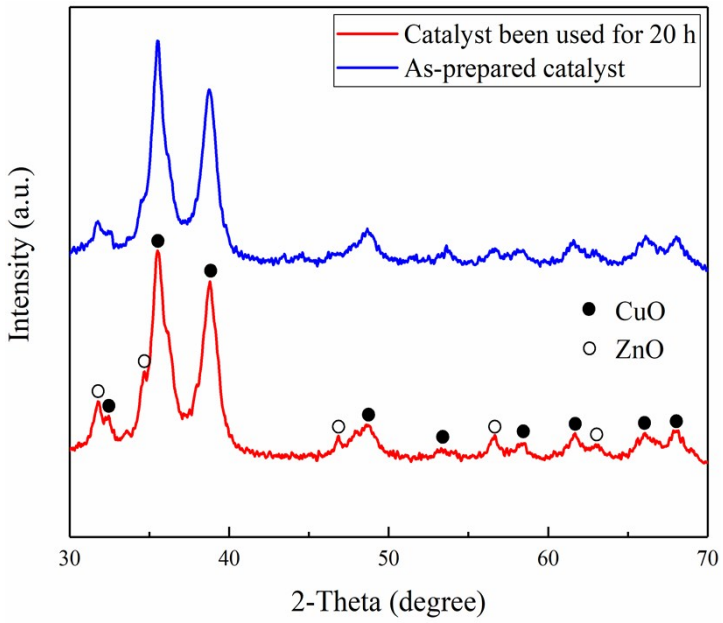

Fig. S2. XRD patterns of the as-prepared catalyst and the catalyst been used for 20 h.