

Figure S1. TEM images of ZnO.

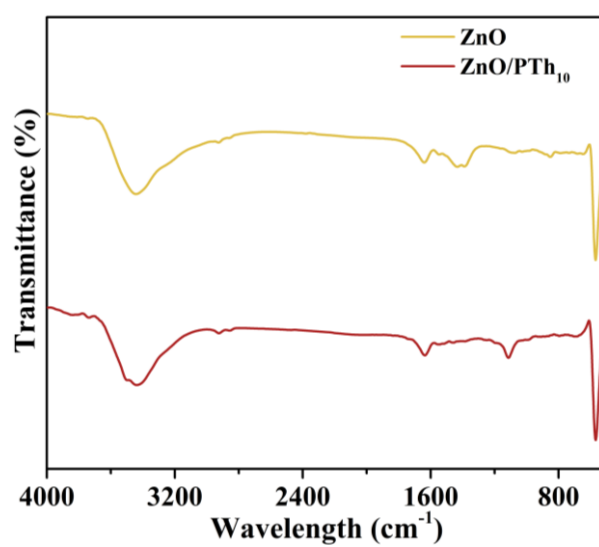


Figure S2. Infrared spectra of ZnO and ZnO/PTh<sub>10</sub>.

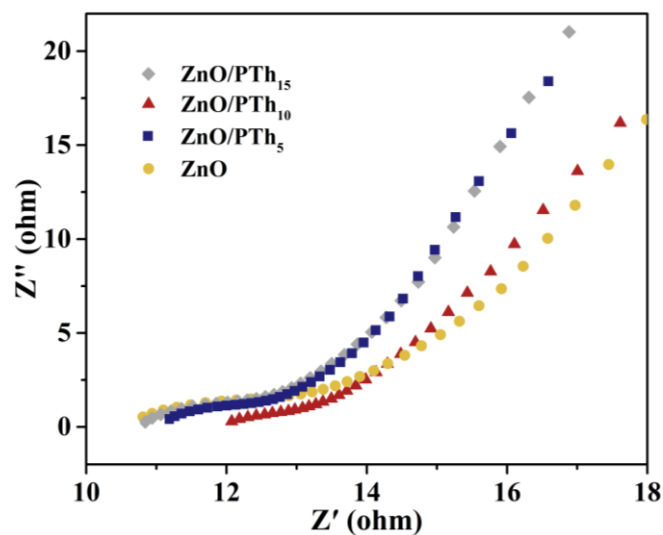


Figure S3. Nyquist plots of ZnO and ZnO/PTh<sub>x</sub>.

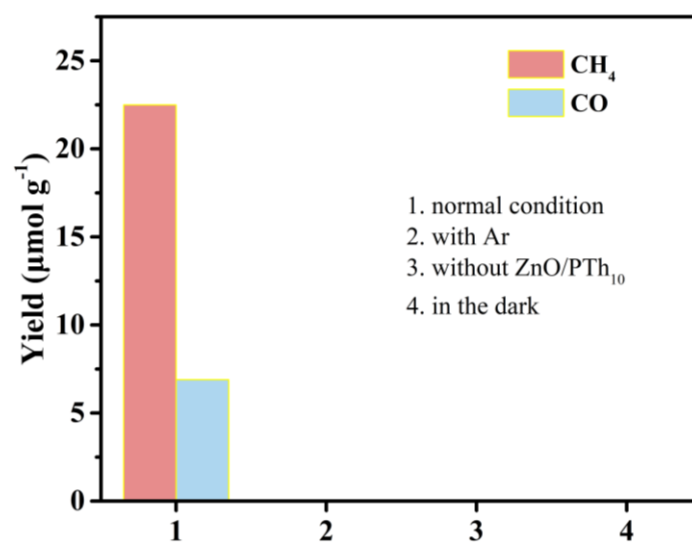


Figure S4. Effect of different reaction conditions on the photocatalytic activity of ZnO/PTh<sub>10</sub>.

The experimental conditions and operations for reaction 1 are the same as the section of 3.3. Reaction 2 uses Ar gas instead of CO<sub>2</sub>, reaction 3 does not add photocatalysts, and reaction 4 does not undergo illumination.

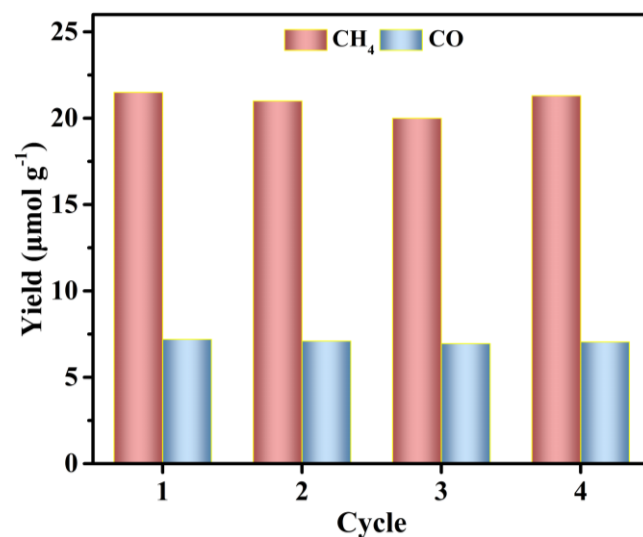


Figure S5. Cycle test for ZnO/PTh<sub>10</sub>.

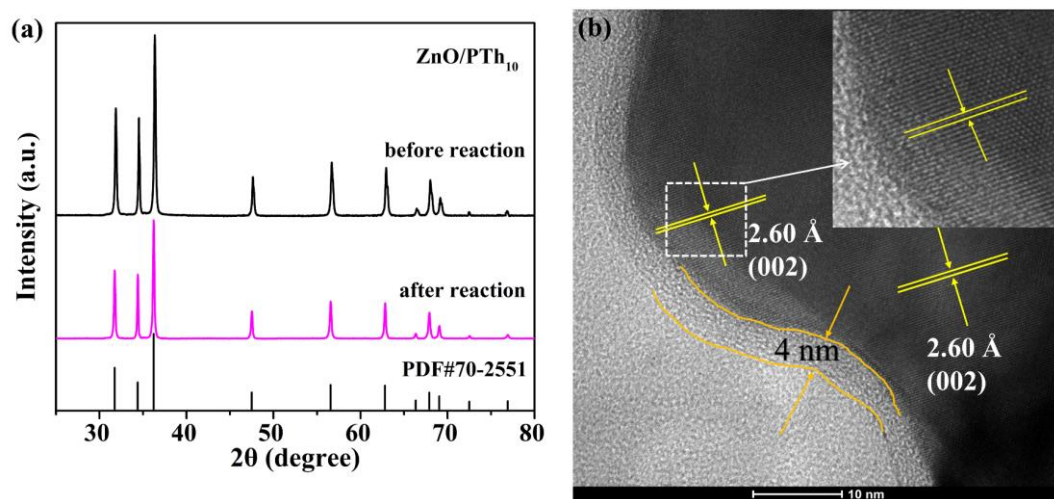


Figure S6. (a) XRD patterns and (b) TEM images of ZnO/PTh<sub>10</sub> after cyclic experiment.