

## Supporting Information

### Surface catalytic effect of Ag nanoparticles and influence of dissolved oxygen for photocatalytic reduction of nitrate

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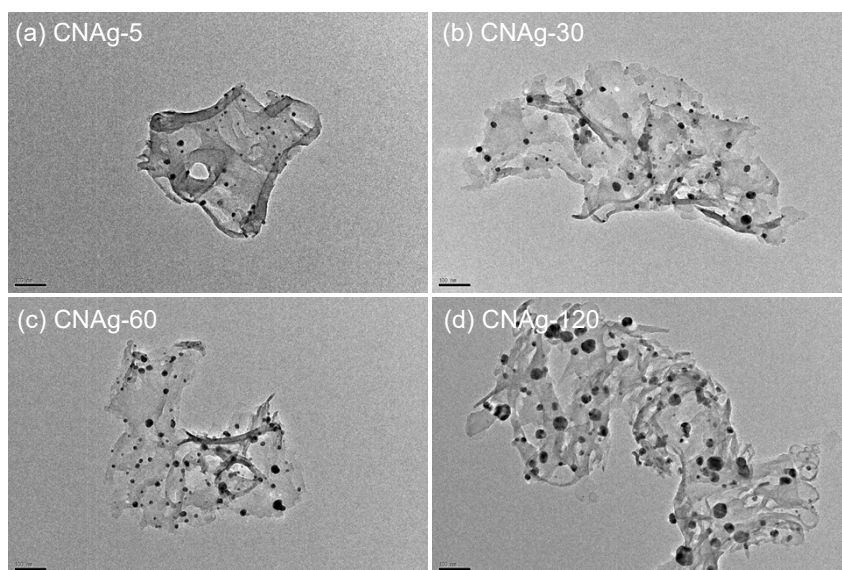
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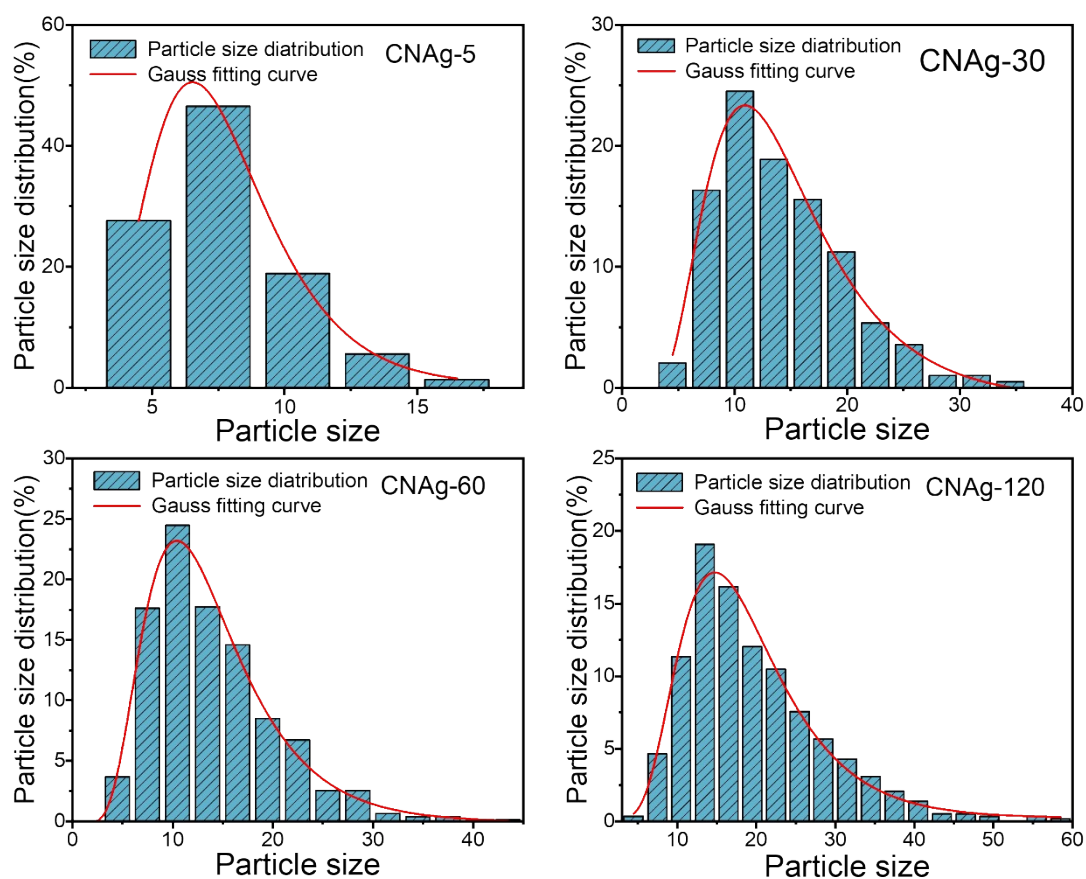
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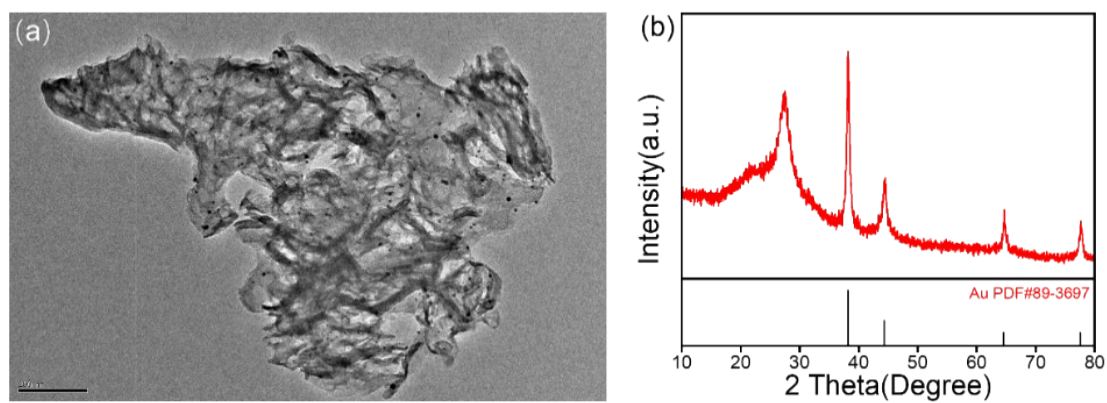
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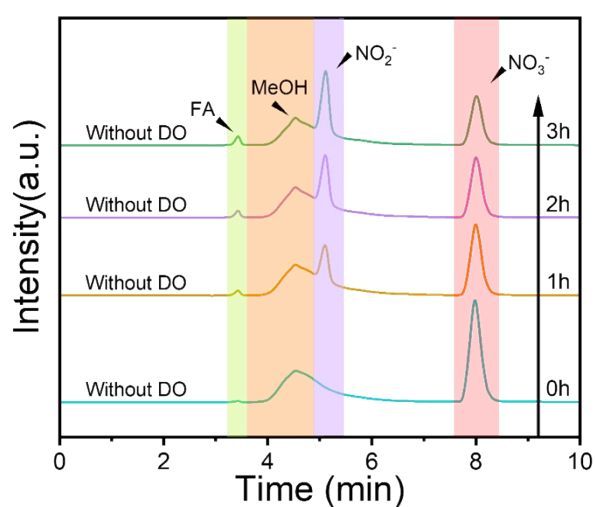
**Fig.S1** TEM images of the CNAg samples with different photodeposition durations.



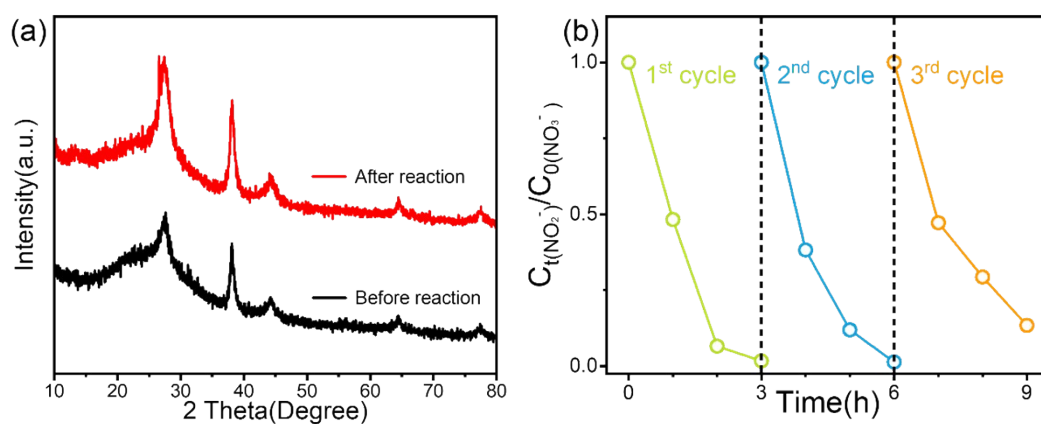
**Fig.S2** Statistical curve of the particle size of different samples.



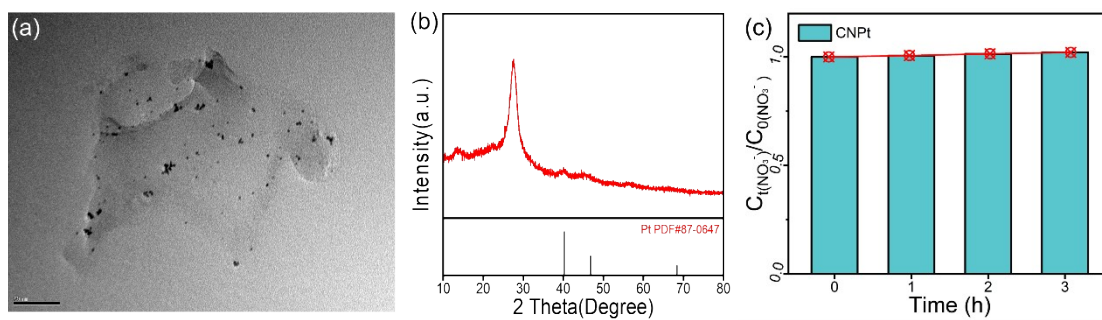
**Fig.S3** (a) XRD pattern and (b) TEM image of the CNAu sample.



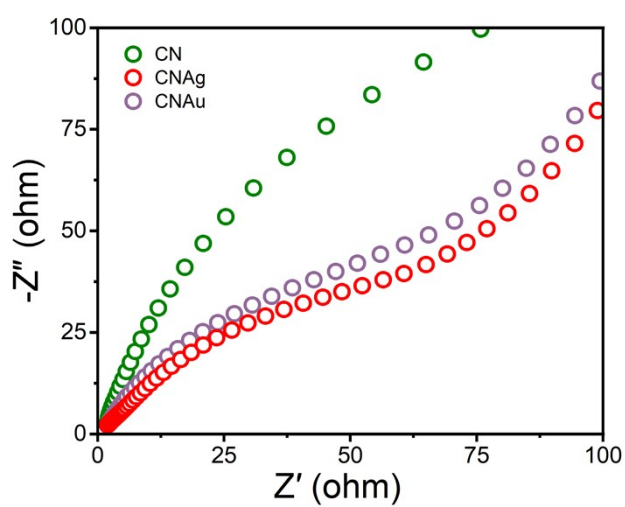
**Fig.S4** Ion chromatogram measurement of the photocatalytic system with CNAg as photocatalyst without dissolved oxygen.



**Fig.S5** (a) The XRD patterns before and after the photocatalytic reaction (b) Cyclic test performance of the CNAg-30 composite samples



**Fig.S6** (a)TEM, (b)XRD pattern and (c) photocatalytic performance of the CNPt sample.



**Fig.S7** Nyquist plots of the as-prepared different samples.