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## **Supporting Information**

## Bi-functional Ag-Cu<sub>x</sub>O/g-C<sub>3</sub>N<sub>4</sub> hybrid catalysts for the reduction of 4nitrophenol and electrochemical detection of dopamine

Atul Verma, Sanath Kumar, Wen-Ku Chang and Yen-Pei Fu\* Department of Materials Science and Engineering, National Dong Hwa University, Hualien 97401, Taiwan



Figure S1. XRD pattern of (a) Ag-CuO and pristine CuO and (b) peak shifts in the major peaks.



Figure S2. FESEM images of ACCG catalyst at (a) 5 kx, (b) 10 kx and (d) 20 kx.



Figure S3. FESEM elemental mapping of ACCG catalyst.



Figure S4. (a) Cu 2p spectra and (b) Ag 3d spectra in the material AC.



Figure S5. (a) UV-Vis absorbance vs time spectra of 4-NP in ACCG catalyst (b) Concentration ( $C_t$ ) vs time plots at various concentrations of 4-NP in 20 mgL<sup>-1</sup> ACCG and 0.01M NaBH<sub>4</sub>.



**Figure S6.** (a) Effect of various anions on 4-NP catalytic reduction and (b) corresponding rate constant bar chart in ACCG catalyst at 40 ppm 4-NP and 0.01M NaBH<sub>4</sub>.



Figure S7. Differential CV (a) for ACG and (b) for ACC catalysts.



Figure S8. Comparison between XRD of fresh, used and re-annealed ACCG catalyst.

Material	CuO(-111)/CuO(111)				
Ag-Cu <sub>2</sub> O-CuO-gCN (ACCG)	0.98				
Ag-CuO-gCN (ACG)	1.01				
Ag-Cu <sub>2</sub> O-CuO (ACC)	0.98				
Ag-CuO (AC)	1.01				

Table S1. Ratio of CuO (-111) to CuO (111) in the synthesized catalysts.

**Table S2.** Rate constant, R<sup>2</sup> and reduction time at different 4-NP and catalyst concentrations for ACCG catalyst.

Catalyst ACCG	4-NP Concentration (ppm)				Catalyst Conc. (mg/L)					
	50	40	30	20	10	10	20	30	40	50
Rate constant	8.4	11.2	13.1	17.8	22	6.7	11.2	12.6	17.9	28.7
(×10 <sup>-2</sup> min <sup>-1</sup> )										
<b>R</b> <sup>2</sup>	0.96	0.97	0.95	0.98	0.97	0.98	0.97	0.98	0.96	0.98
*Reduction time (minutes)	12	10	9	7	5.5	16	10	9	7	4

\*time taken for complete reduction/conversion of 4-NP to 4-AP.