

# Supporting Information

## Highly Active 3-Dimensional Cobalt Oxide Nanostructures on the Flexible Carbon Substrates for Enzymeless Glucose Sensing

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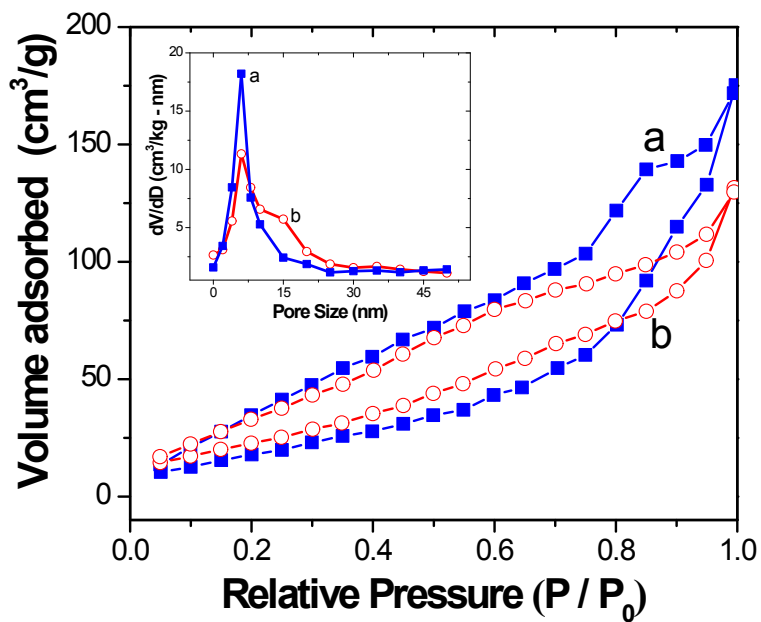
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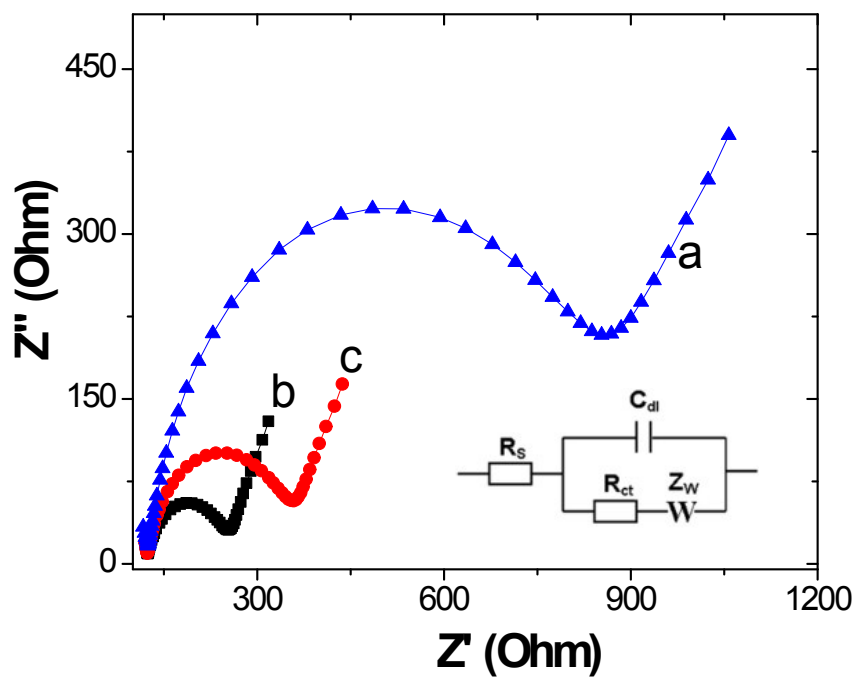
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**Figure S1.** BET nitrogen adsorption and desorption isotherms, and BJH pore size distribution (inset) of 3-D/Co<sub>3</sub>O<sub>4</sub> hierarchical thorn-like nanostructures (a), and 3-D/ Co<sub>3</sub>O<sub>4</sub> nanowires (b) on the flexible CFP substrates.



**Figure S2.** Nyquist plots of the 3D/Co<sub>3</sub>O<sub>4</sub> thorn-like and nanowires modified CPF electrodes measured with amplitude of 5 mV over the frequency range of 100 kHz and 0.01 Hz

**Table S1.** Comparison of the detection limit of as fabricated non-enzymatic glucose sensor based on  $\text{Co}_3\text{O}_4$  nanomaterials.

<b>Nanomaterials <math>\text{Co}_3\text{O}_4</math> nanostructures modified electrodes</b>	<b>Detection Limit (<math>\mu\text{M}</math>)</b>	<b>References</b>
$\text{Co}_3\text{O}_4$ nanoparticles	500	1
3D hierarchical porous $\text{Co}_3\text{O}_4$ film	1	2
$\text{Co}_3\text{O}_4$ nanoparticles	0.13	3
$\text{Co}_3\text{O}_4$ nanoparticles	0.14	4
3D Hierarchical porous $\text{Co}_3\text{O}_4$ nanostructures	0.24	5
$\text{Co}_3\text{O}_4$ nanofibers	0.97	6
$\text{Co}_3\text{O}_4$ acicular nanorods	0.058	7
$\text{Co}_3\text{O}_4$ nanoflowers	0.058	8
$\text{Co}_3\text{O}_4$ microspheres	0.080	9
$\text{Co}_3\text{O}_4$ Nanoflowers	0.1	10
Complex Nanostructures of $\text{Co}_3\text{O}_4$	0.8	11
$\text{Co}_3\text{O}_4$ Nanoflakes	0.7	12
$\text{Co}_3\text{O}_4$ Ultra-Nanosheets	1.08	13
Hollow $\text{Co}_3\text{O}_4$ Microspheres Assembled with Nanocrystals	2	14
$\text{Co}_3\text{O}_4$ Nanostructures, Nanoparticles, Nanorods, and Nanoflowers	0.04	15
Hierarchical 3D/ $\text{Co}_3\text{O}_4$ thorn-like nanostructures	0.046	This work

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**Table S2.** Comparison between the values obtained in commercial glucose sensor from standard hospital method and those obtained by using 3D/Co<sub>3</sub>O<sub>4</sub> thorn-like nanostructures CFP electrode for the determination of glucose in human blood serum samples.

<b>Human blood serum samples</b>	<b>Concentration of glucose determined by standard hospital method (mM)<sup>1</sup></b>	<b>Concentration of glucose determined by our method (mM±SD)<sup>2</sup></b>	<b>Recovery (%)</b>
1	5.00	4.77±0.02	95.4
2	5.00	4.81±0.03	96.2
3	5.00	4.78±0.01	95.6
4	4.99	4.76±0.02	95.3
5	5.00	4.82±0.01	96.4
6	4.99	4.79±0.01	95.9

1. As determined by commercial glucose sensor from standard hospital method in human blood serum samples (One-touch glucometer, Johnson & Johnson Medical, Ltd.).

2. As determined by 3D/Co<sub>3</sub>O<sub>4</sub> thorn-like nanostructures in human blood serum samples.