

## **Supporting information**

### **Electrochemical Analysis of Asymmetric supercapacitor based on BiCoO<sub>3</sub>@g-C<sub>3</sub>N<sub>4</sub> Nanocomposites**

**Pandiaraja Varatharajan<sup>a</sup>, I. B. Shameem Banu<sup>a\*</sup>, Mohamad Hafiz Mamat<sup>b\*</sup>,  
Nagamalai Vasimalai<sup>c\*</sup>**

*<sup>a</sup>Department of Physics, B.S. Abdur Rahman Crescent Institute of Science & Technology,  
Vandalur, Chennai-600 048, India.*

*<sup>b</sup>NANO-ElecTronic Centre (NET), School of Electrical Engineering, College of Engineering,  
Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia.*

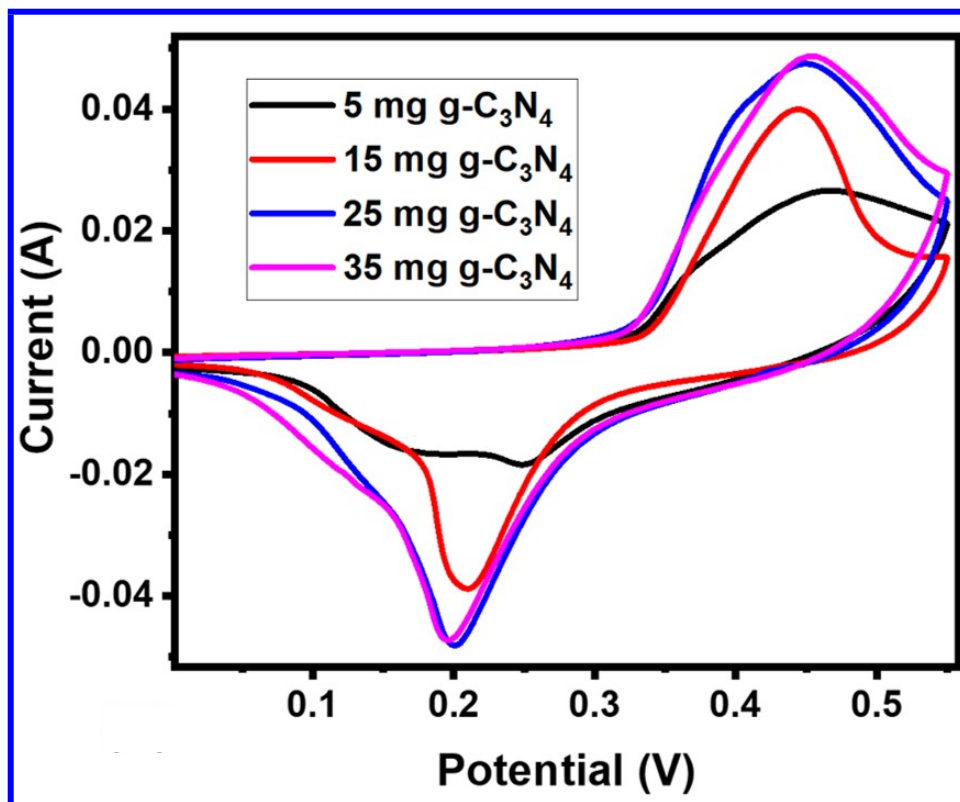
*<sup>c</sup>Department of Chemistry, B.S. Abdur Rahman Crescent Institute of Science & Technology,  
Vandalur, Chennai-600 048, India.*

\* Corresponding Authors. E-Mail: [vasimalai@crescent.education](mailto:vasimalai@crescent.education) (Nagamalai Vasimalai)

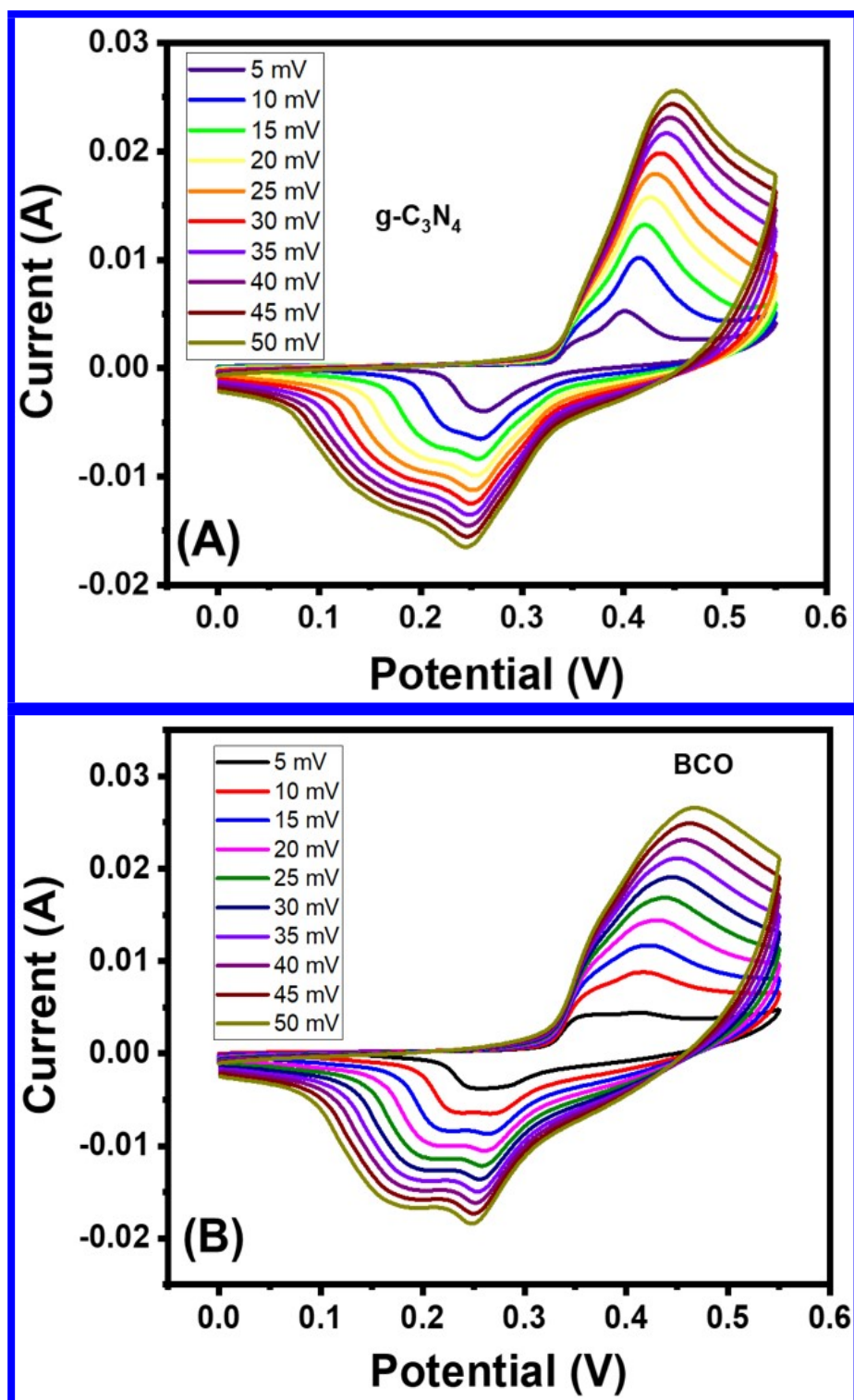
E-Mail: [shameembanu@crescent.education](mailto:shameembanu@crescent.education) (I. B. Shameem Banu)

E-Mail: [mhmamat@uitm.edu.my](mailto:mhmamat@uitm.edu.my) (Mohamad Hafiz Mamat)

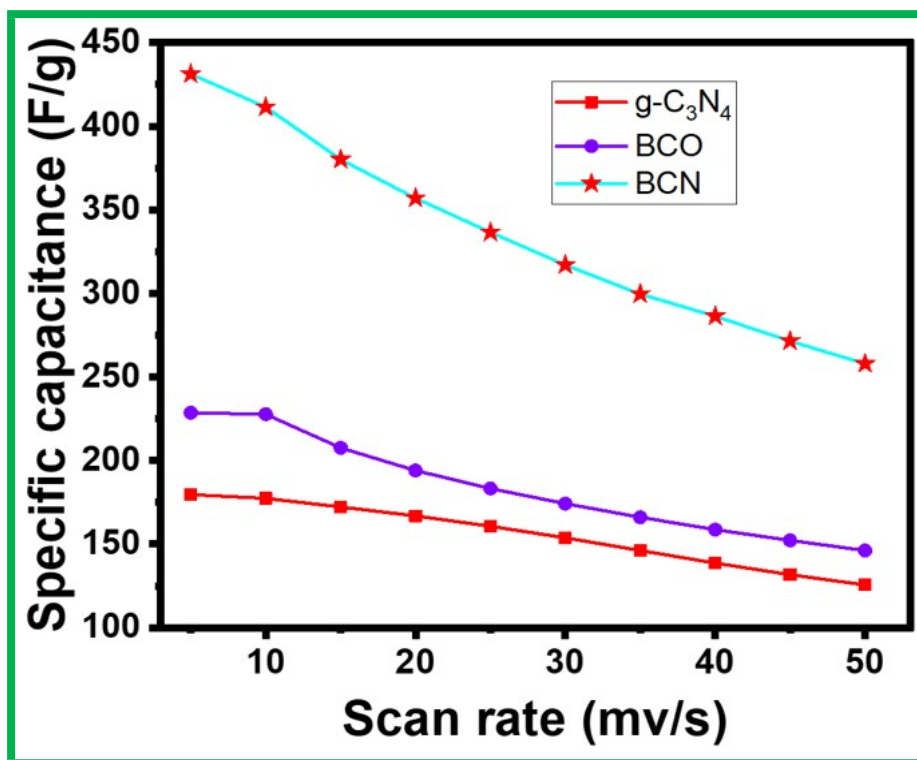
<b>Fig. No.</b>	<b>Figure Captions</b>	<b>Page No</b>
Figure S1	CV curves of BiCoO <sub>3</sub> @g-C <sub>3</sub> N <sub>4</sub> for different amount of g-C <sub>3</sub> N <sub>4</sub> at the scan rate 50 mV/s.	S3
Figure S2	(A) CV curves of g-C <sub>3</sub> N <sub>4</sub> with different scan rate from 5 mV/s to 50 mV/s and (B) CV curves of BiCoO <sub>3</sub> with different scan rate from 5 mV/s to 50 mV/s.	S4
Figure S3	Specific capacitance of g-C <sub>3</sub> N <sub>4</sub> , BiCoO <sub>3</sub> and BiCoO <sub>3</sub> @g-C <sub>3</sub> N <sub>4</sub> at different scan rates (from 5 mV/s to 50 mV/s).	S5
Figure S4	(A) CV curves of BiCoO <sub>3</sub> @g-C <sub>3</sub> N <sub>4</sub> with different scan rates from 10 mV to 50 mV and (B) Corresponding linear fit curve between log(v) Vs log(i).	S6
Figure S5	GCD curves of BiCoO <sub>3</sub> @g-C <sub>3</sub> N <sub>4</sub> for different amount of g-C <sub>3</sub> N <sub>4</sub> at the 1 A/g current density.	S7
Figure S6	GCD curves of g-C <sub>3</sub> N <sub>4</sub> at different current densities (1 Ag <sup>-1</sup> to 5 Ag <sup>-1</sup> ).	S8
Figure S7	GCD curves of BiCoO <sub>3</sub> with different current densities (1 to 5 Ag <sup>-1</sup> ).	S9
Figure S8	(A) Volumetric specific capacitance values of BiCoO <sub>3</sub> @g-C <sub>3</sub> N <sub>4</sub> and (B) Volumetric energy density vs power density.	S10
Figure S9	(A) Specific capacitance of ASC device at current densities from 1 to 5 A/g and (B) Power densities and energy densities of ASC device.	S11



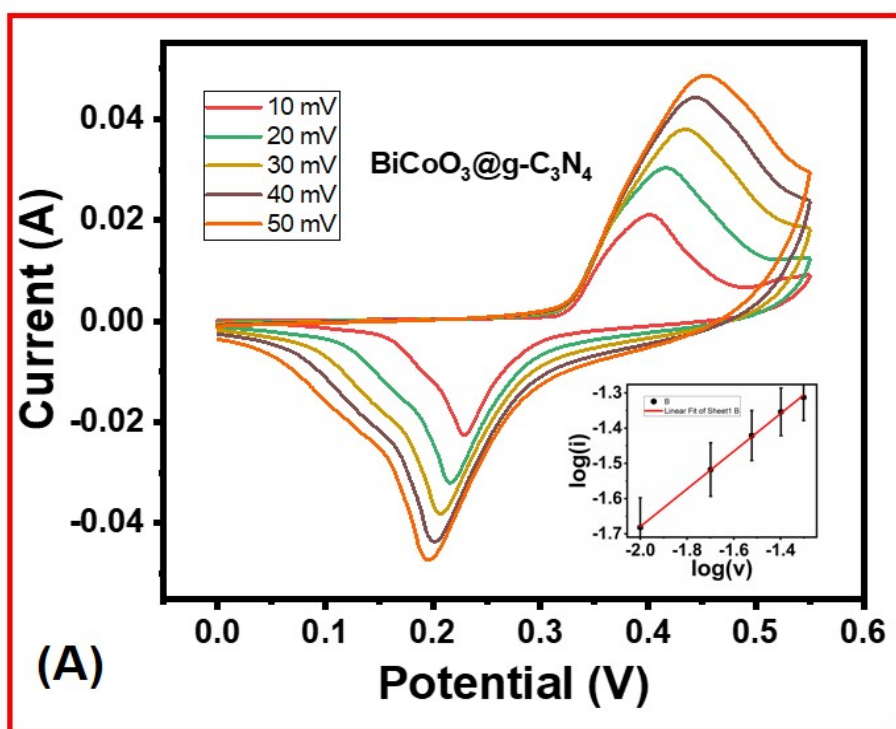
**Fig. S1.** CV curves of BiCoO<sub>3</sub>@g-C<sub>3</sub>N<sub>4</sub> for different amount of g-C<sub>3</sub>N<sub>4</sub> at the scan rate 50 mV/s and



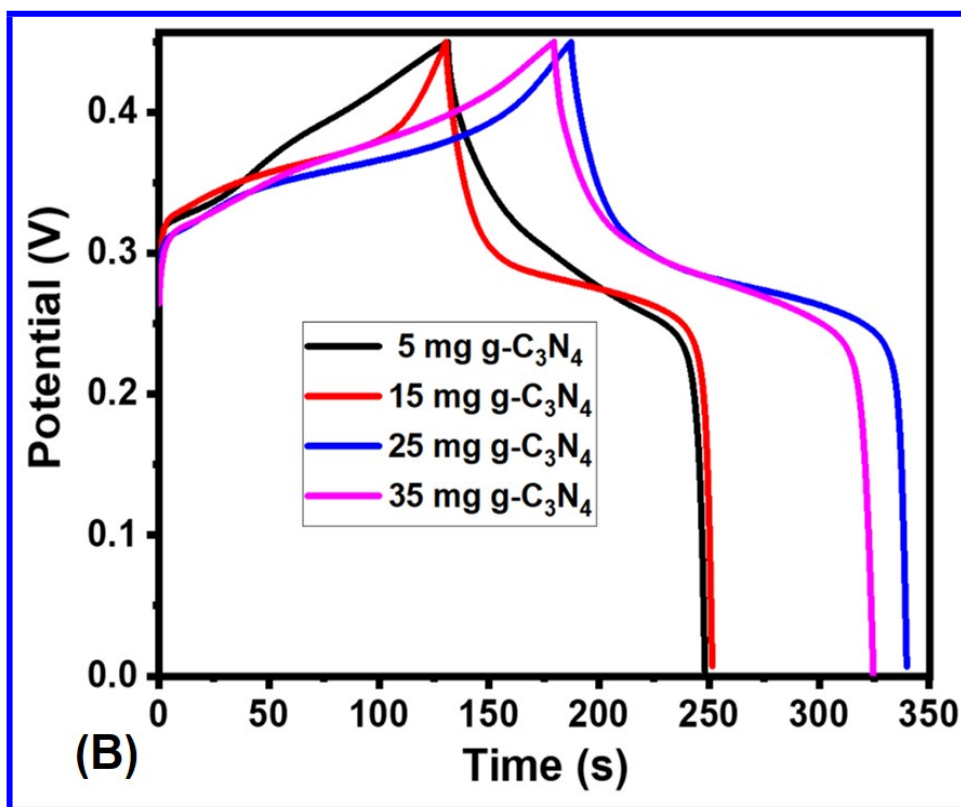
**Fig. S2.** (A) CV curves of g-C<sub>3</sub>N<sub>4</sub> with different scan rate from 5 mV/s to 50 mV/s and (B) CV curves of BiCoO<sub>3</sub> with different scan rate from 5 mV/s to 50 mV/s.



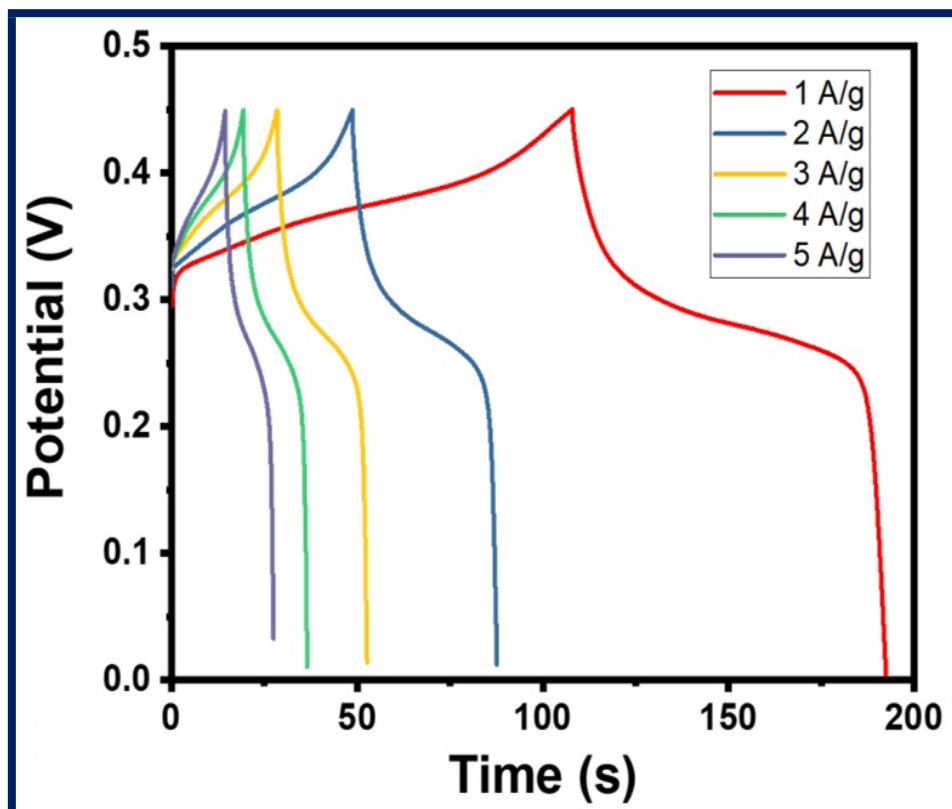
**Fig. S3.** Specific capacitance of g-C<sub>3</sub>N<sub>4</sub>, BiCoO<sub>3</sub> and BiCoO<sub>3</sub>@g-C<sub>3</sub>N<sub>4</sub> at different scan rates (from 5 mV/s to 50 mV/s).



**Fig. S4.** (A) CV curves of BiCoO<sub>3</sub>@g-C<sub>3</sub>N<sub>4</sub> with different scan rates from 10 mV to 50 mV and (B) Corresponding linear fit curve between log(v) Vs log(i).

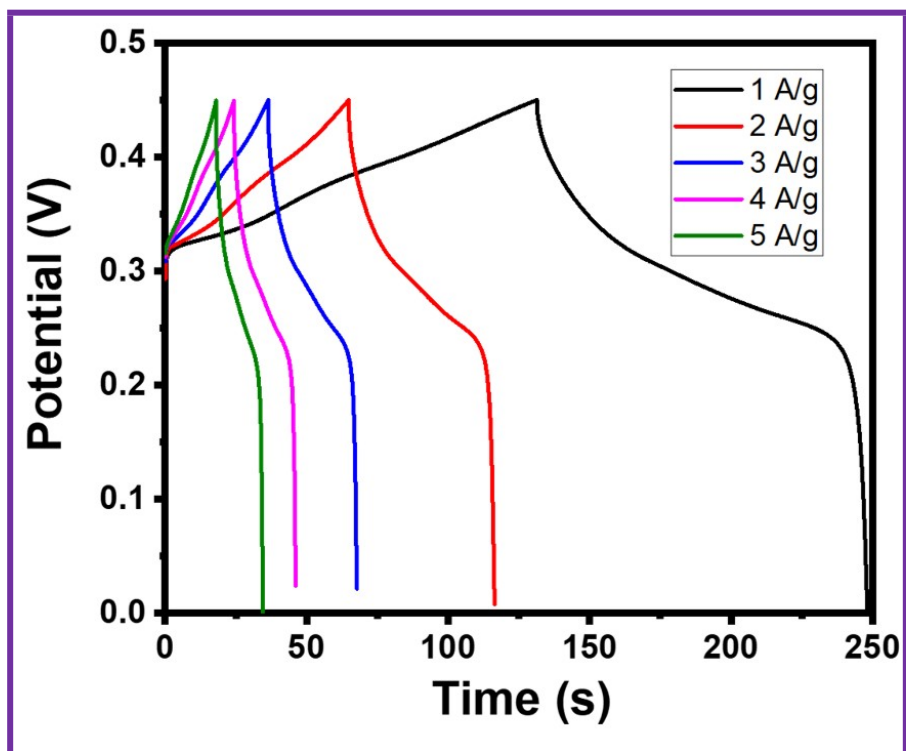


**Fig. S5.** GCD curves of BiCoO<sub>3</sub>@g-C<sub>3</sub>N<sub>4</sub> for different amount of g-C<sub>3</sub>N<sub>4</sub> at the 1 A/g current density.

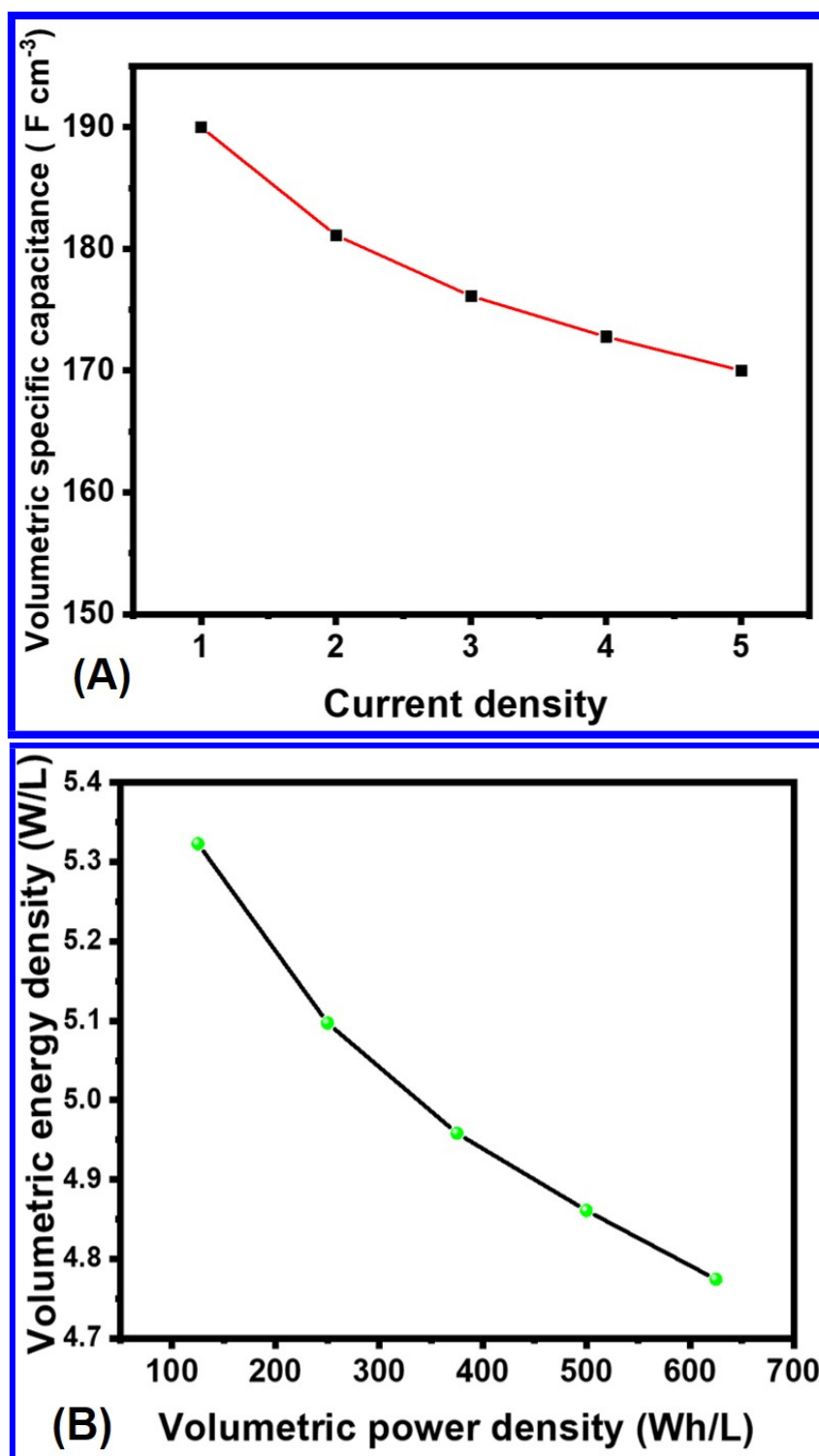


**Fig. S6.** GCD curves of g-C<sub>3</sub>N<sub>4</sub> at different current densities (1 Ag<sup>-1</sup> to 5 Ag<sup>-1</sup>).

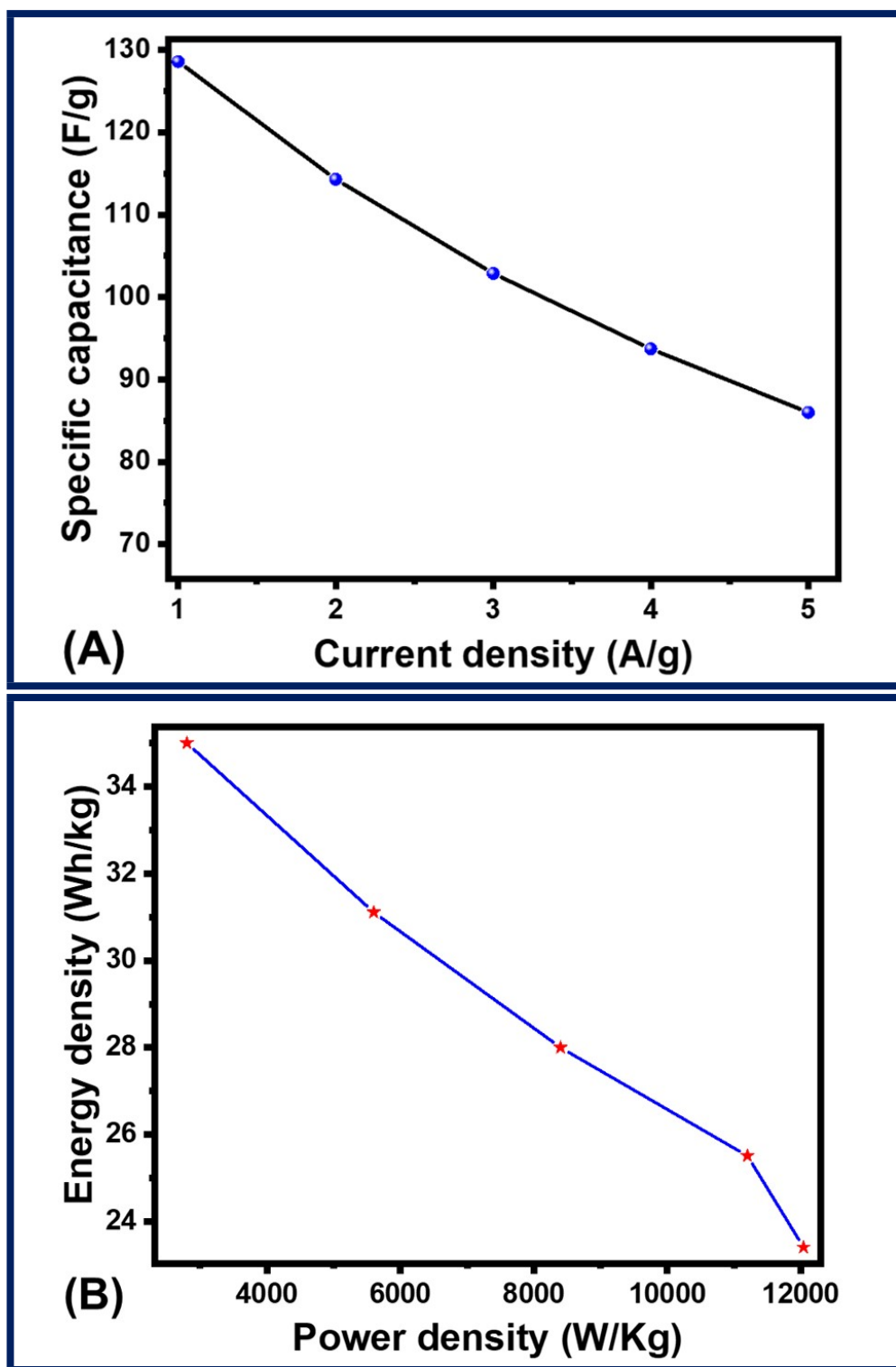




**Fig. S7.** GCD curves of BiCoO<sub>3</sub> with different current densities (1 to 5 A/g).



**Fig. S8.** (A) Volumetric specific capacitance values of  $\text{BiCoO}_3@g\text{-C}_3\text{N}_4$  and (B) Volumetric energy density vs power density.



**Fig. S9.** (A) Specific capacitance of ASC device at current densities from 1 to 5 A/g and (B) Power densities and energy densities of ASC device.