

Enhanced electrostatic potential with high energy and power density of Symmetric and Asymmetric Solid-State Supercapacitor of boron and nitrogen co-doped reduced graphene nanosheet for Energy storage device

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Figure S1. AFM images of the graphene oxide at a lateral view with an appropriate measurements

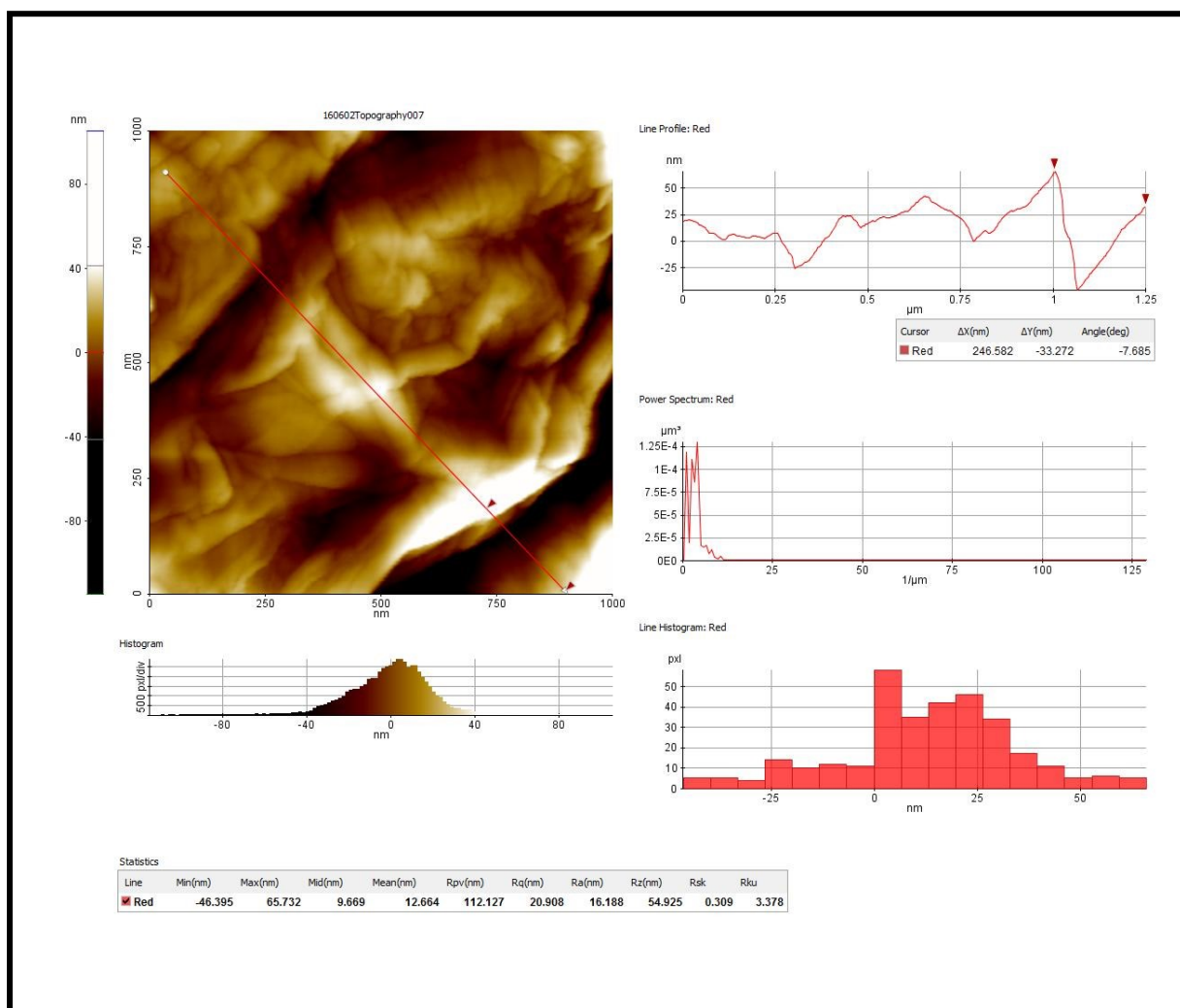


Figure S2. Elemental mapping of the BNUG1 at a magnification of 50 μm shows the presence of boron, carbon, nitrogen and oxygen with the EDAX spectra.

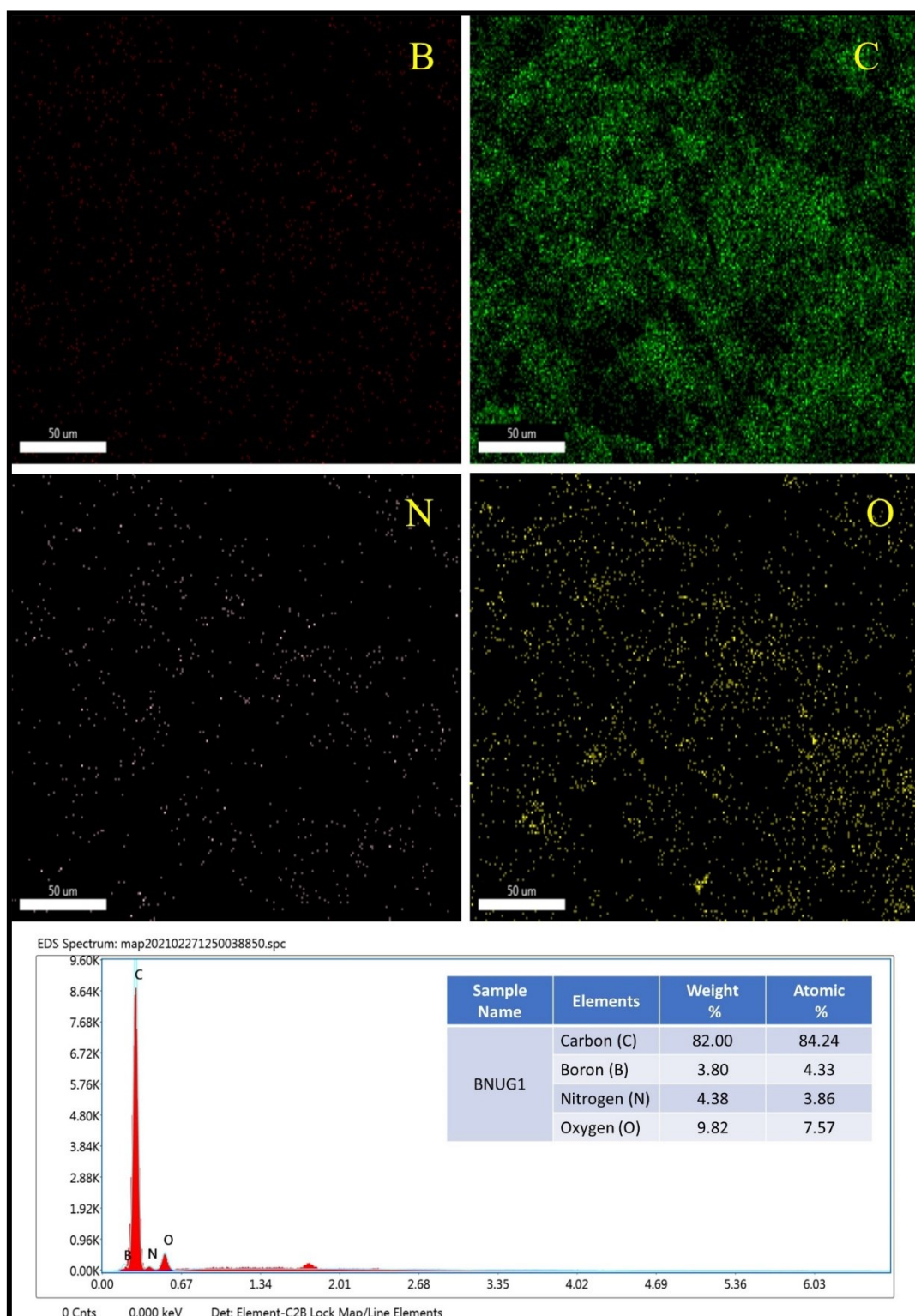


Figure S3. Elemental mapping of the BNUG2 at a magnification of 50 μm shows the presence of boron, carbon, nitrogen and oxygen with the EDAX spectra.

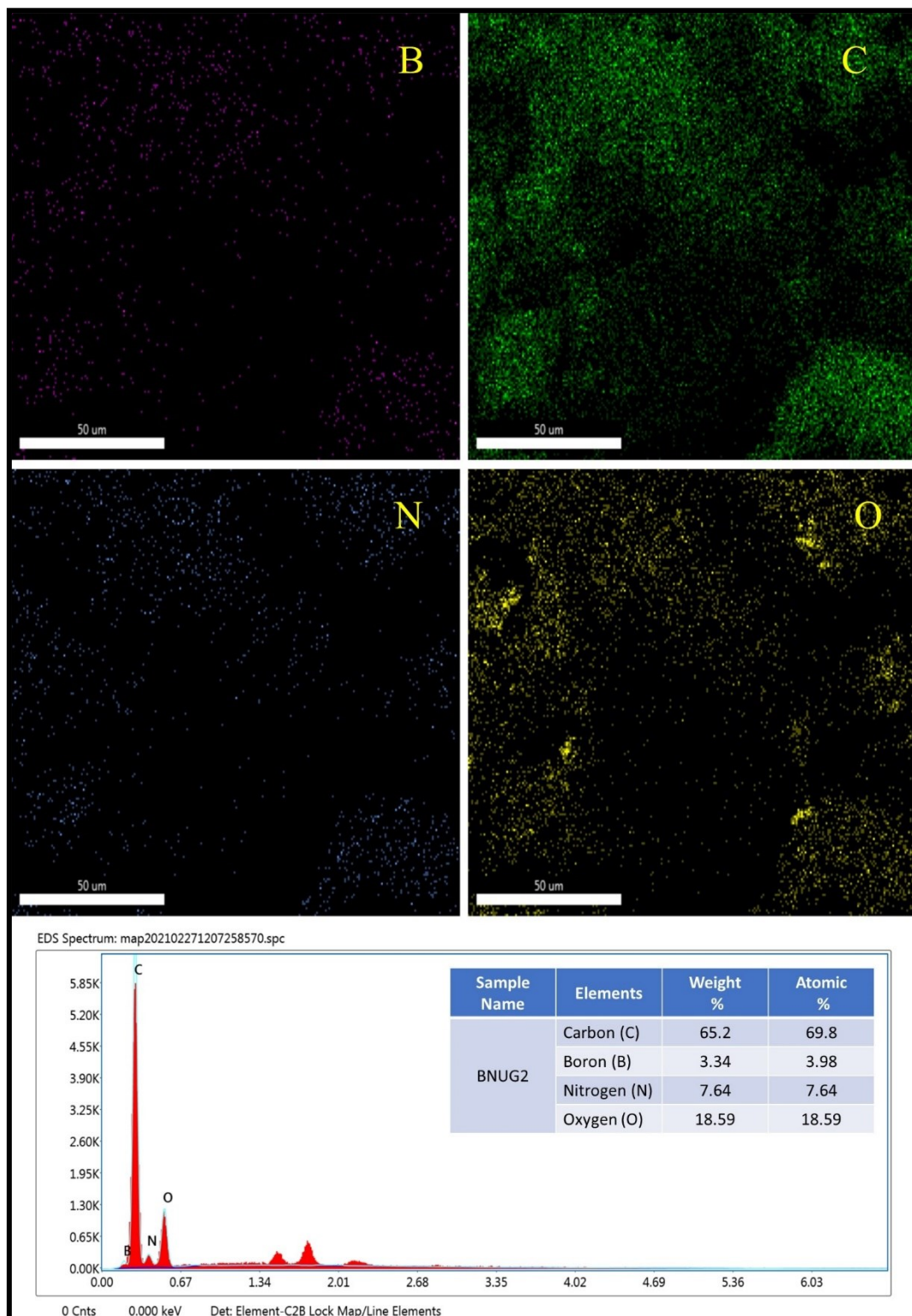


Figure S4. Elemental mapping of the BNUG3 at a magnification of 50 μm shows the presence of boron, carbon, nitrogen and oxygen with the EDAX spectra.

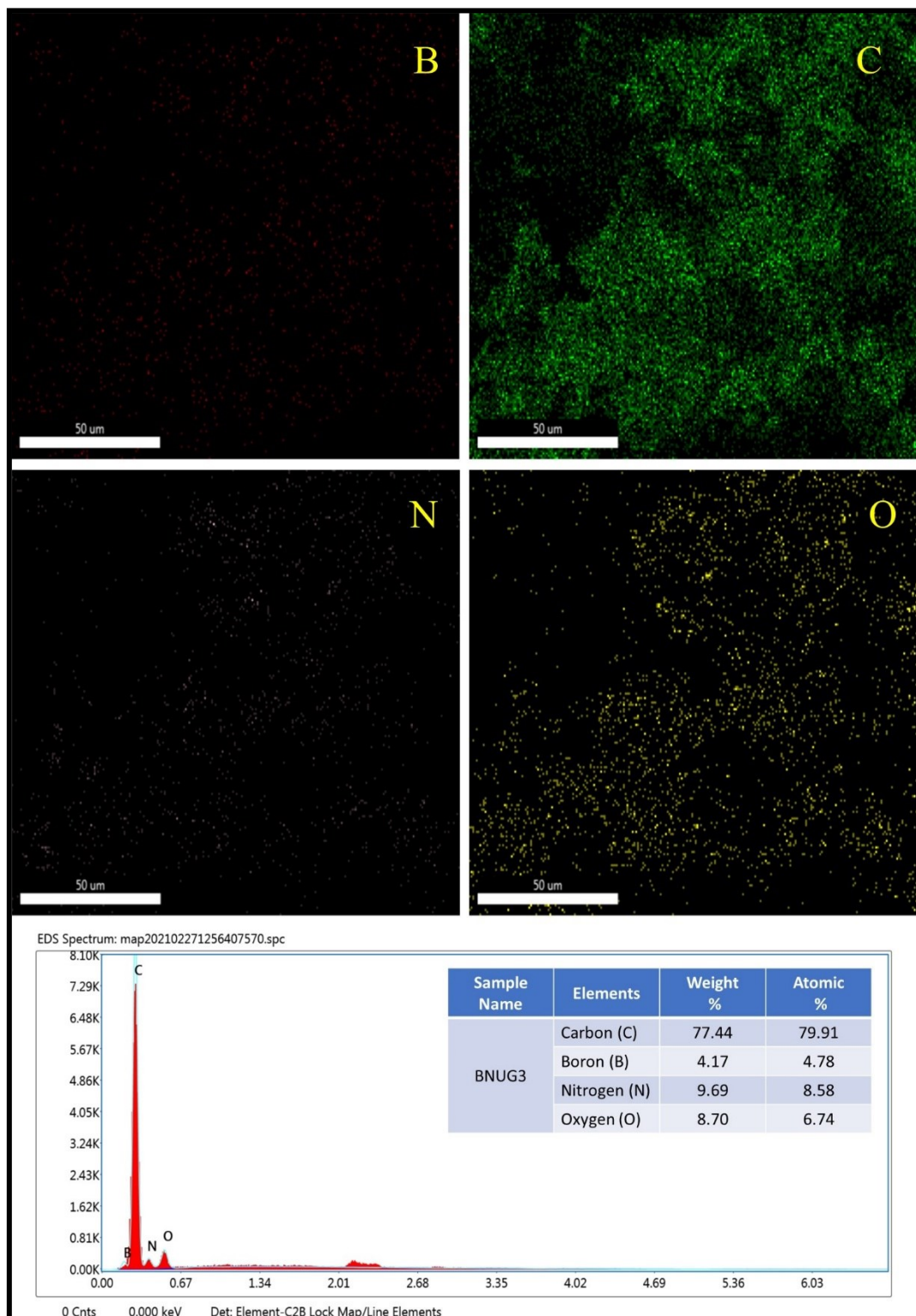


Figure S5. Elemental mapping of the BNUG4 at a magnification of 50 μm shows the presence of boron, carbon, nitrogen and oxygen with the EDAX spectra.

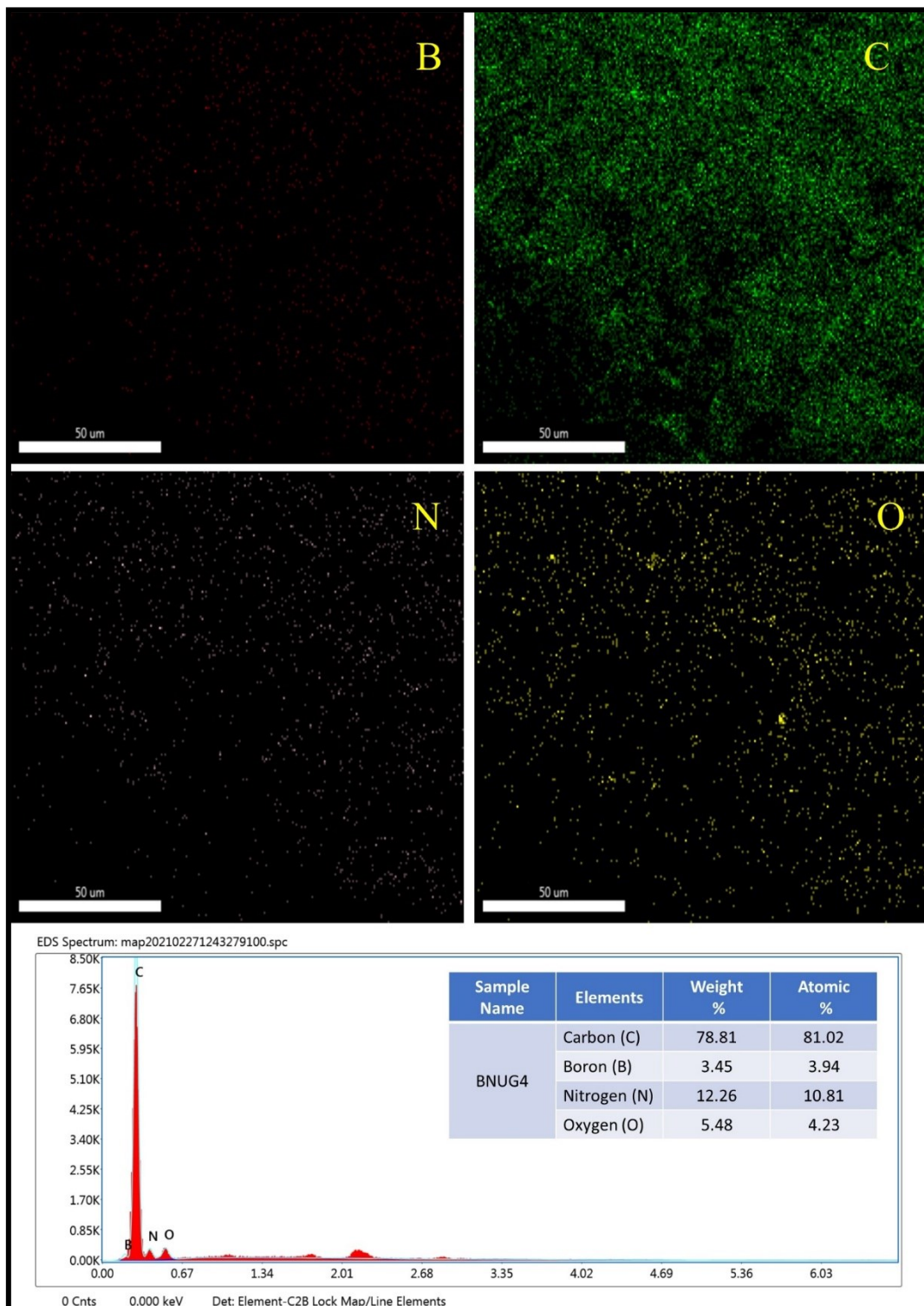


Figure S6. Elemental mapping of the BNUG5 at a magnification of 50 μm shows the presence of boron, carbon, nitrogen and oxygen with the EDAX spectra.

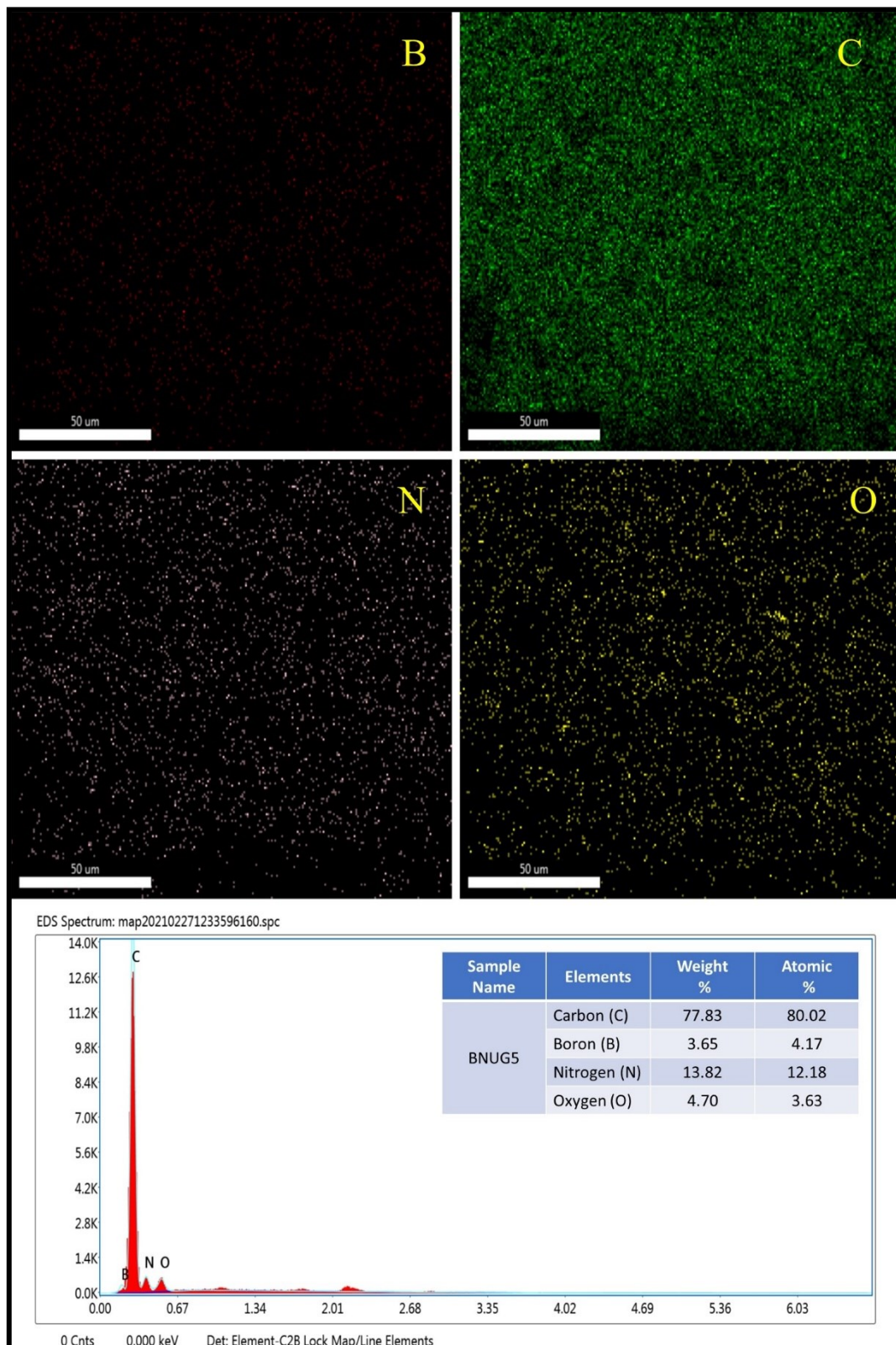


Figure S7. Deconvoluted XPS spectra of O1s (a) BNUG2, (b) BNUG3 and (c) BNUG4

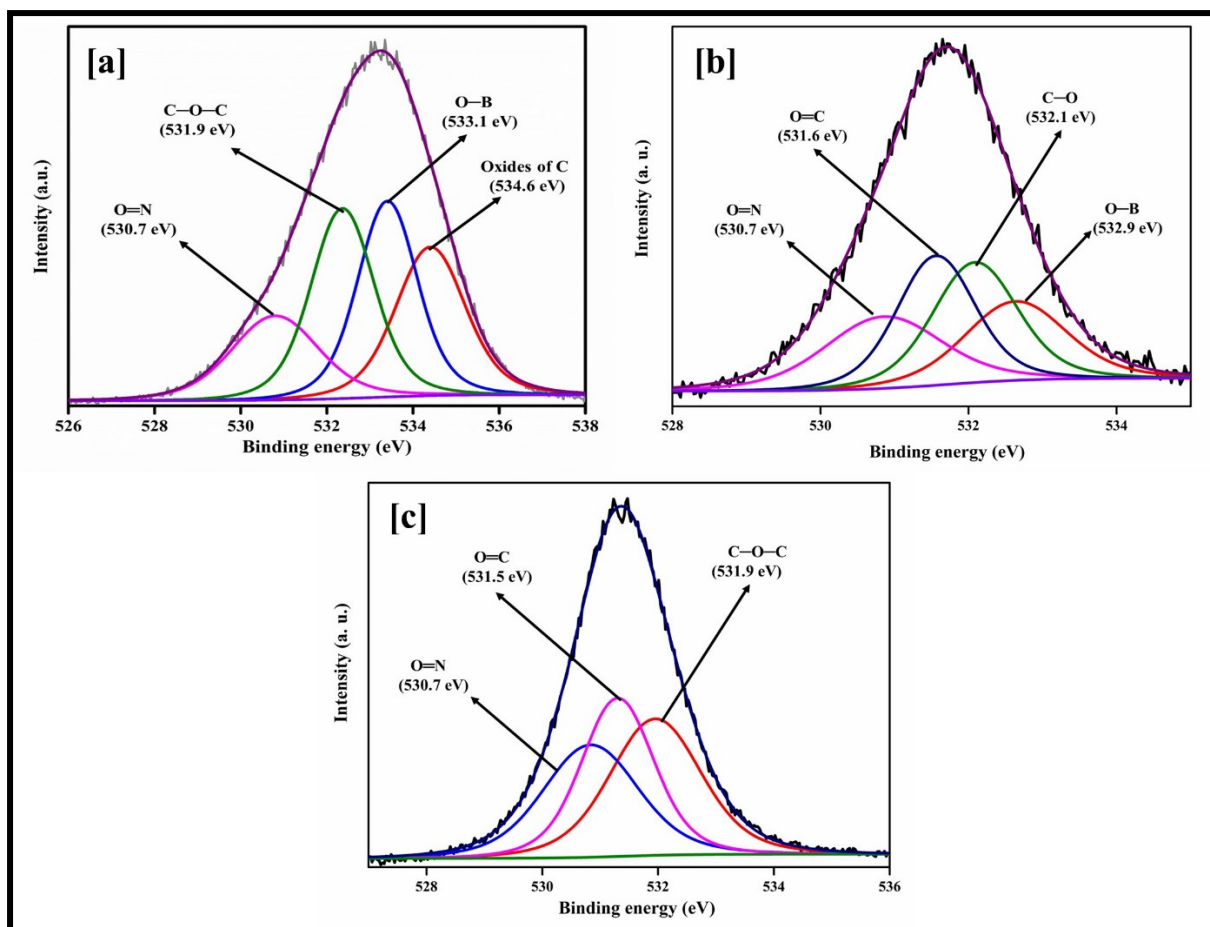


Figure S8. (a, c) Cyclic voltammetry at various scan rate of 100 mV s^{-1} to 10 mV s^{-1} and (b, d) Charge-Discharge curve at various current density from 1 Ag^{-1} to 20 Ag^{-1} of BNUG1 and BNUG2

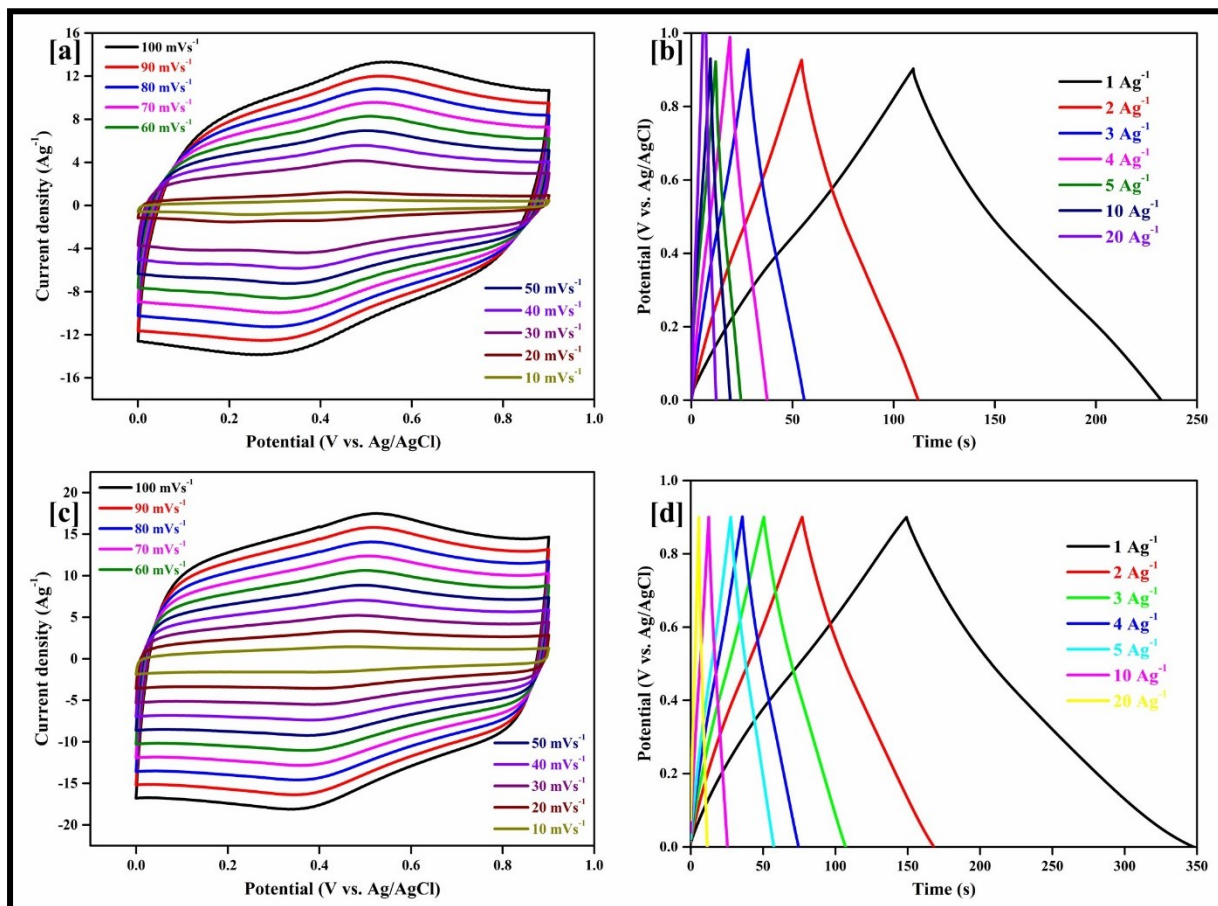


Figure S9. (a, c) Cyclic voltammetry at various scan rate of 100 mV s⁻¹ to 10 mV s⁻¹ and (b, d) Charge-Discharge curve at various current density from 1 Ag⁻¹ to 20 Ag⁻¹ of BNUG3 and BNUG5

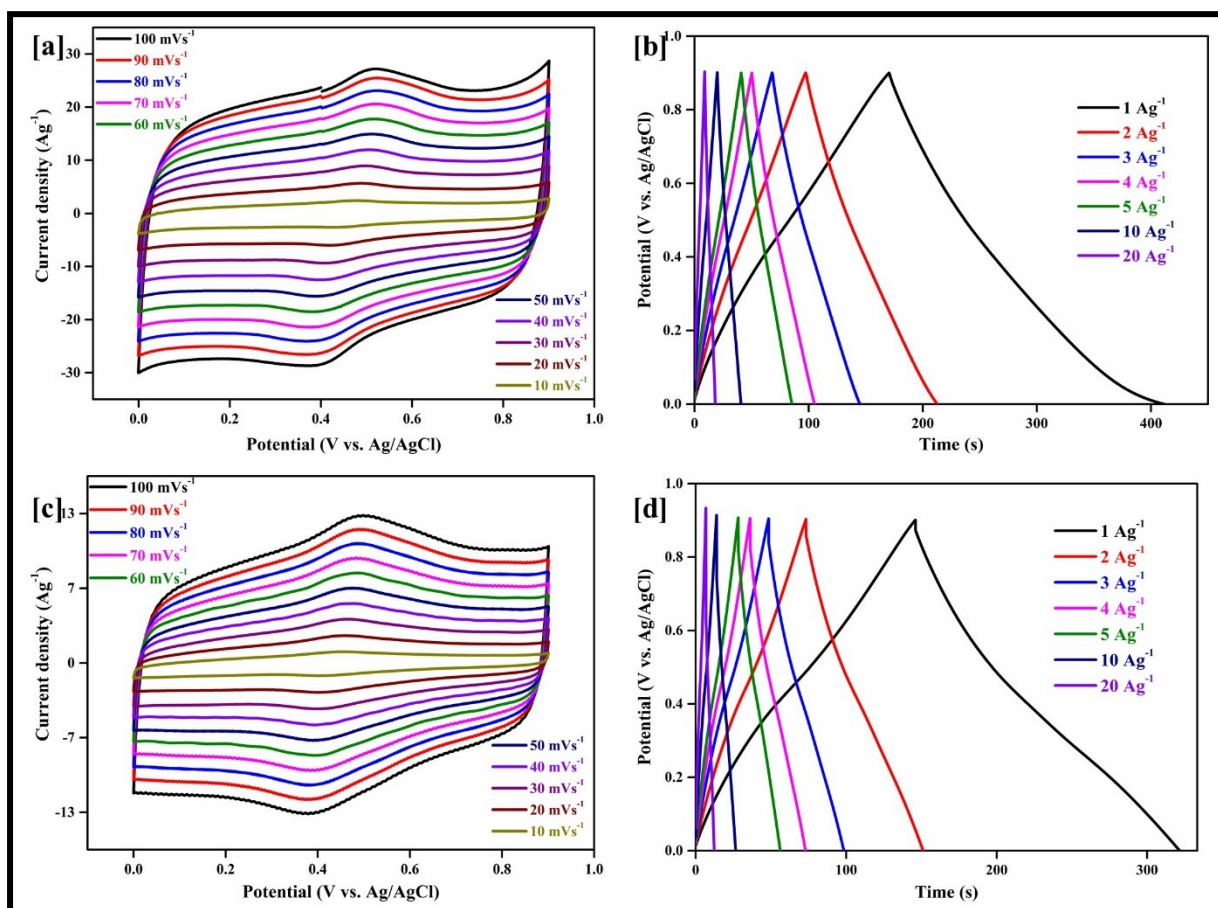


Figure S10. (a, c, e) Cyclic voltammetry at various scan rate of 100 mV s⁻¹ to 10 mV s⁻¹ and (b, d, f) Charge-Discharge curve at various current density from 1 Ag⁻¹ to 20 Ag⁻¹ of GO, BGO and NGO

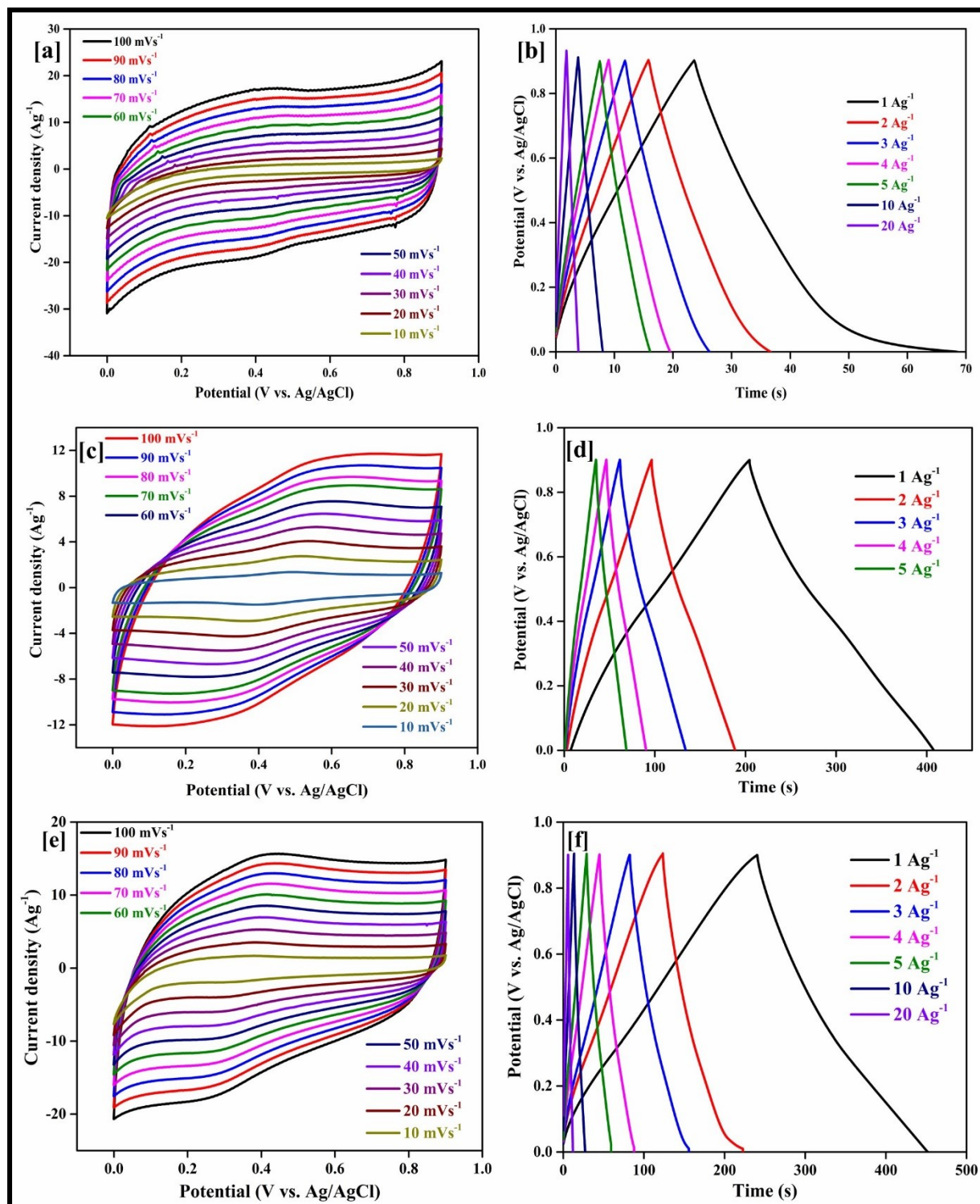


Figure S11. (a, c) Cyclic voltammetry curve of BNUG6 and BNUG7 at various scan rate from 100 to 10 mVs^{-1} , (b, d) Charge-discharge curve of BNUG6 and BNUG7 at different current densities from 1 to 10 Ag^{-1} .

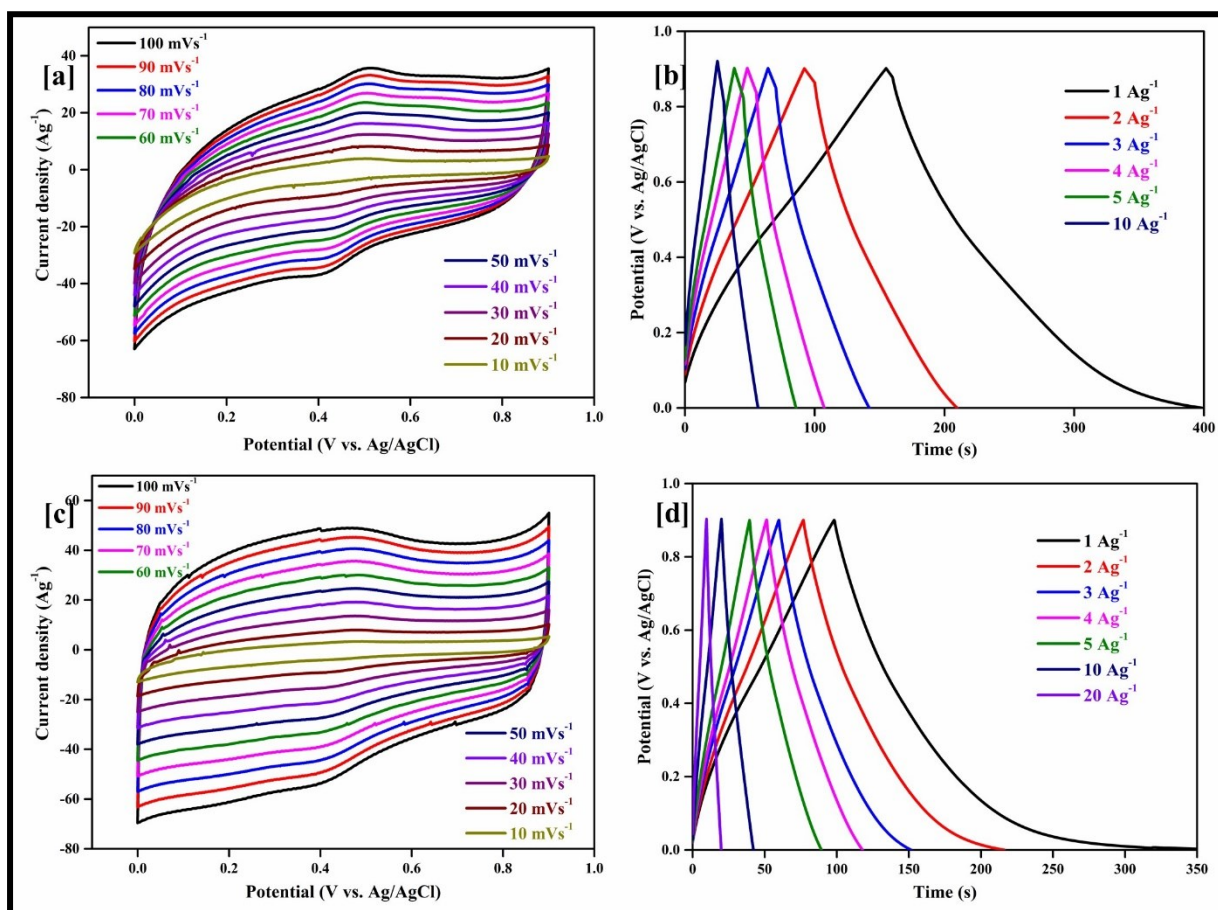


Figure S 12. (a) Cyclic Voltammetry curve of activated charcoal at different scan rate and (b) Charge-discharge curve of activated charcoal at different current densities from 0.5 Ag^{-1} to 10 Ag^{-1} .

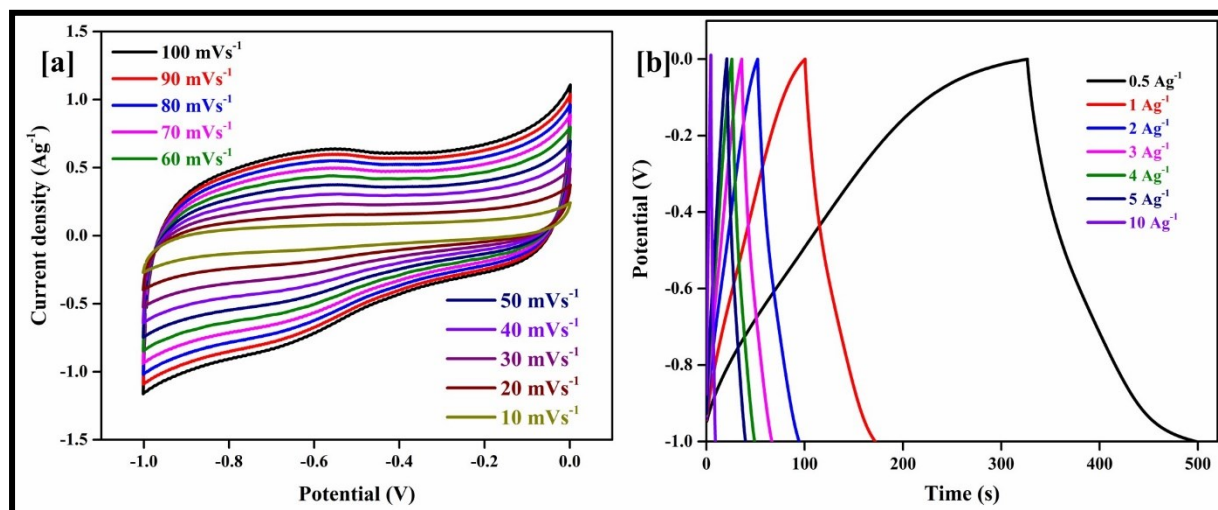


Figure S13. (a, c, e) Cyclic voltammetry curve at various scan rate from 100 mV s^{-1} to 10 mV s^{-1} and (b, d, f) Charge-Discharge curve at various current density from 1 Ag^{-1} to 5 Ag^{-1} of an ASSC device of BNUG4//AC at an operating potential window of 1.0 V, 1.2 V and 1.4 V

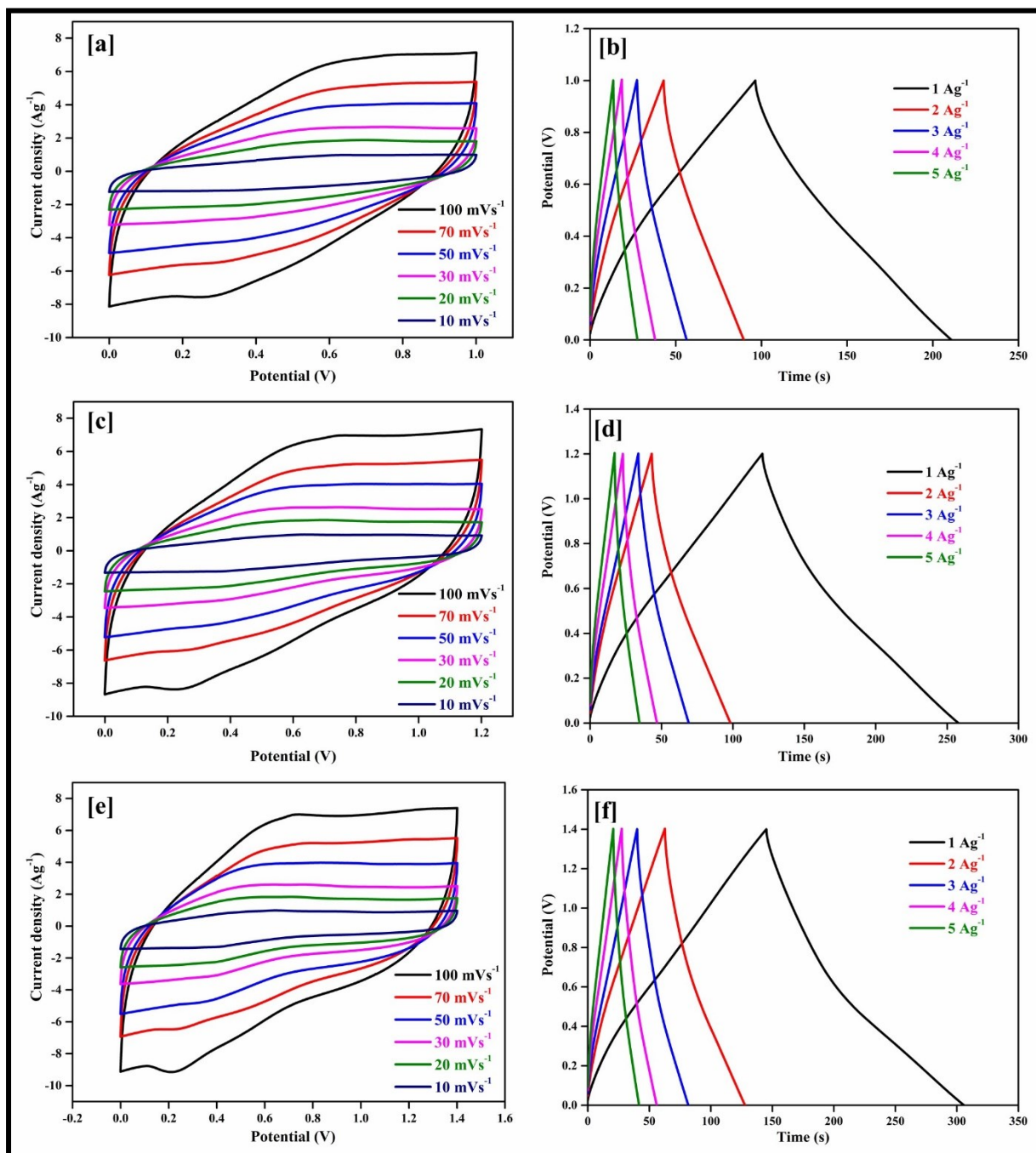


Figure S14. (a, c, e) Cyclic voltammetry curve at various scan rate from 100 mV s^{-1} to 10 mV s^{-1} and (b, d, f) Charge-Discharge curve at various current density from 1 Ag^{-1} to 5 Ag^{-1} of an ASSC device of BNUG4//AC at an operating potential window of 1.6 V , 1.8 V and 2.0 V

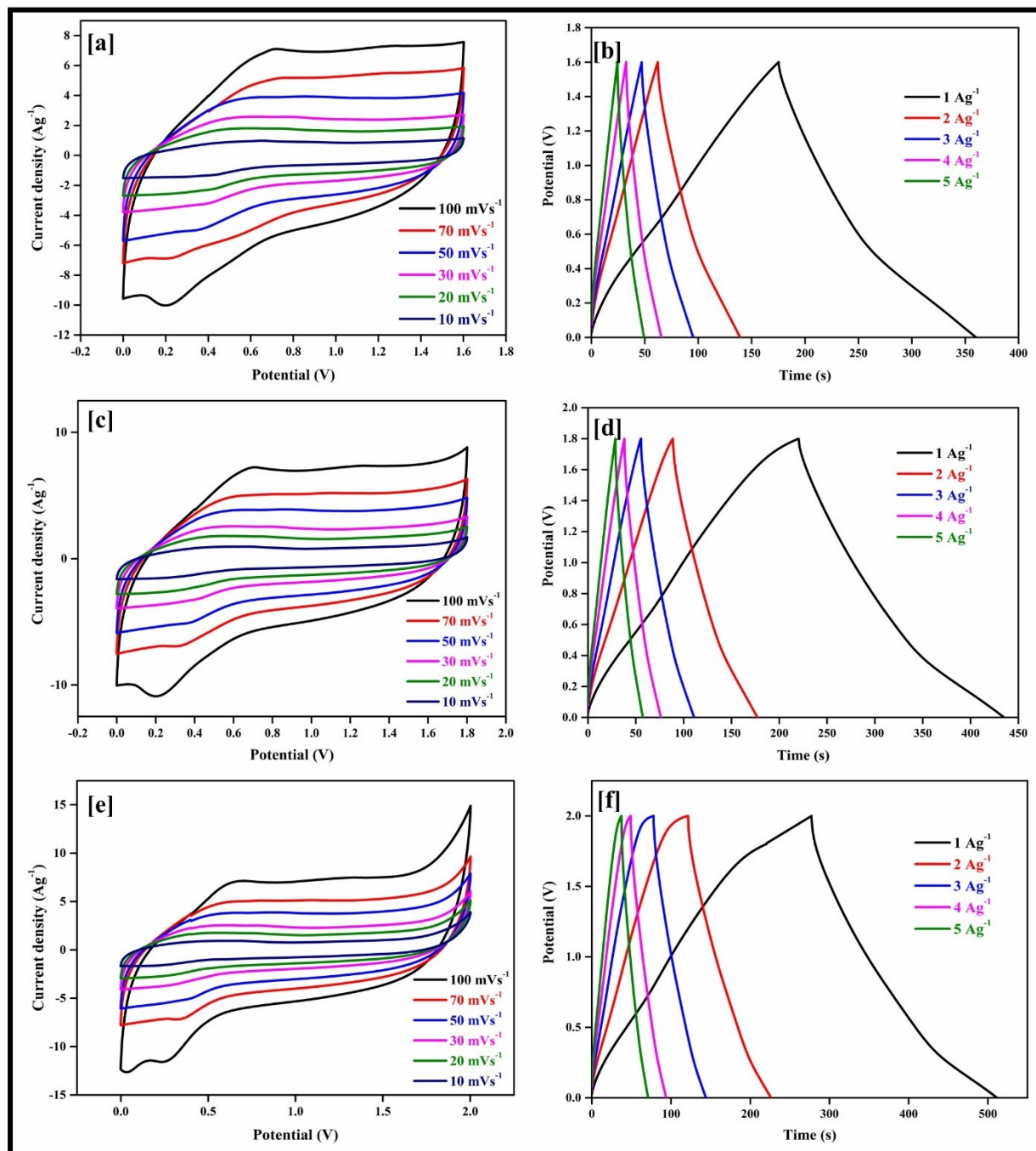


Figure S15. (a, c) Cyclic voltammetry curve at various scan rate from 100 mVs^{-1} to 10 mVs^{-1} and (b, d) Charge-Discharge curve at various current density of 1 Ag^{-1} to 5 Ag^{-1} of BNUG4//BNUG4 at 1.8 V before and after cyclic stability

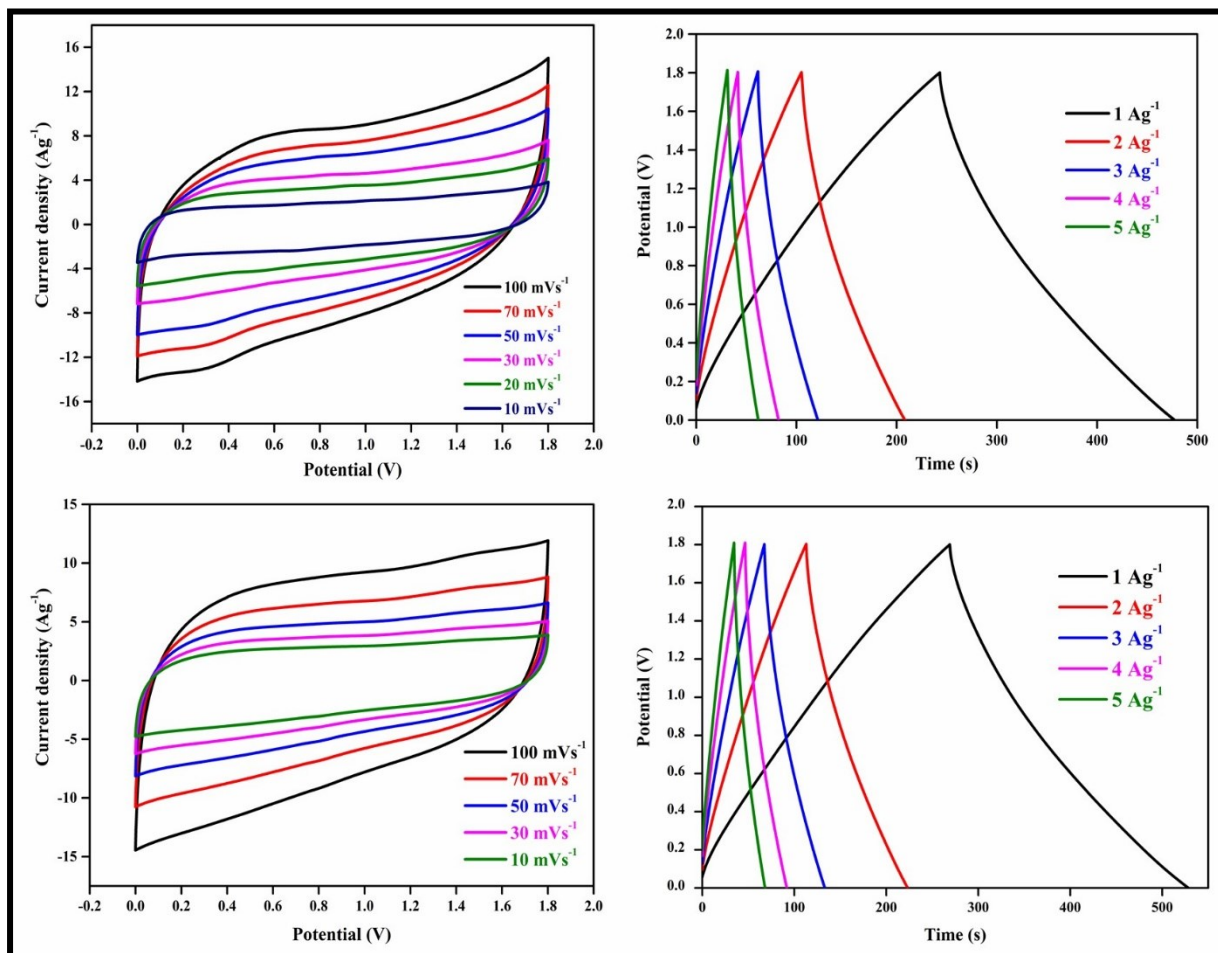


Figure S16. (a, c) Cyclic voltammetry curve at various scan rate from 100 mVs^{-1} to 10 mVs^{-1} and (b, d) Charge-Discharge curve at various current density of 1 Ag^{-1} to 5 Ag^{-1} of BNUG4//BNUG4 at 1.6 V before and after cyclic stability

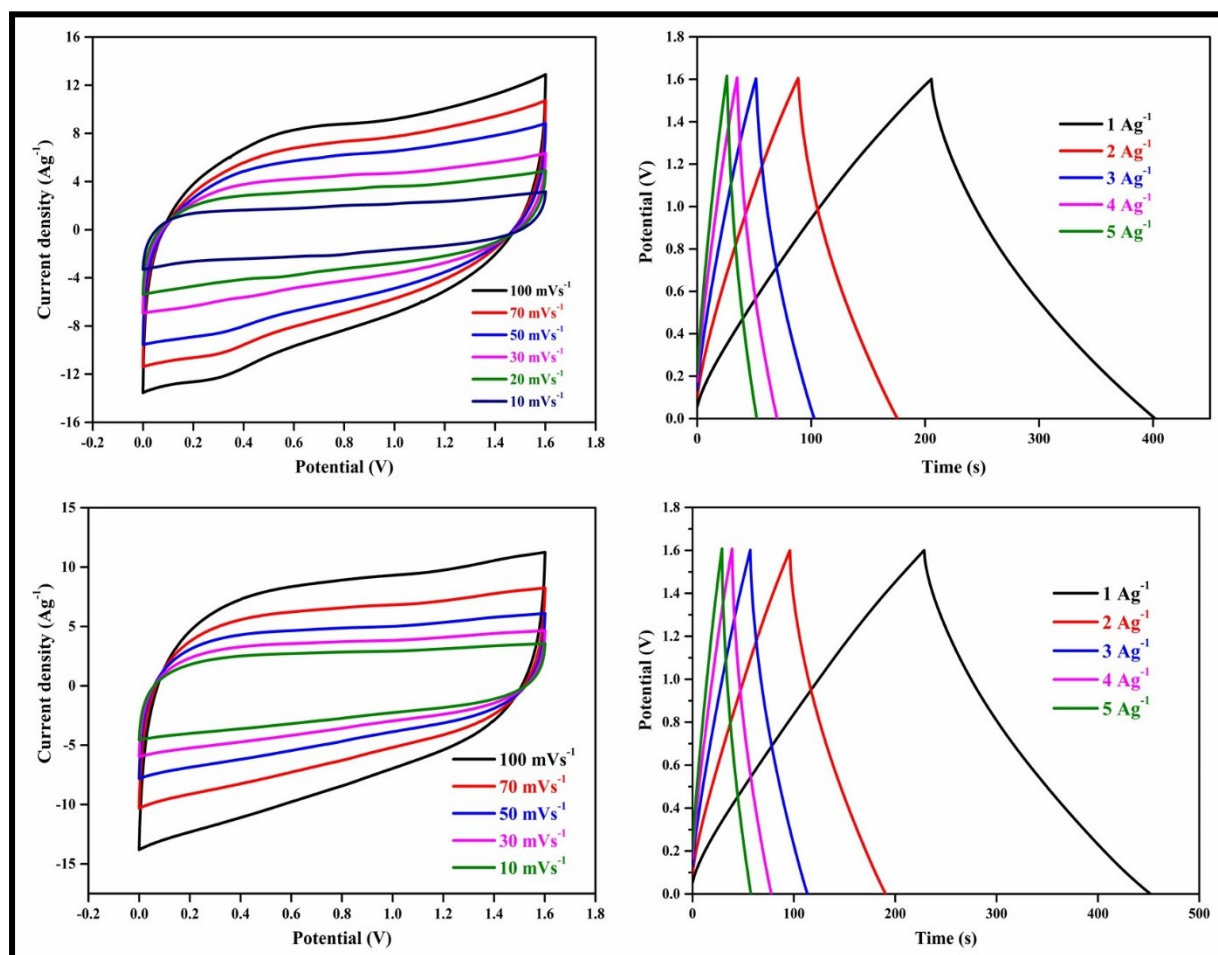


Figure S17. (a, c) Cyclic voltammetry curve at various scan rate from 100 mVs^{-1} to 10 mVs^{-1} and (b, d) Charge-Discharge curve at various current density of 1 Ag^{-1} to 5 Ag^{-1} of BNUG4//BNUG4 at 1.4 V before and after cyclic stability

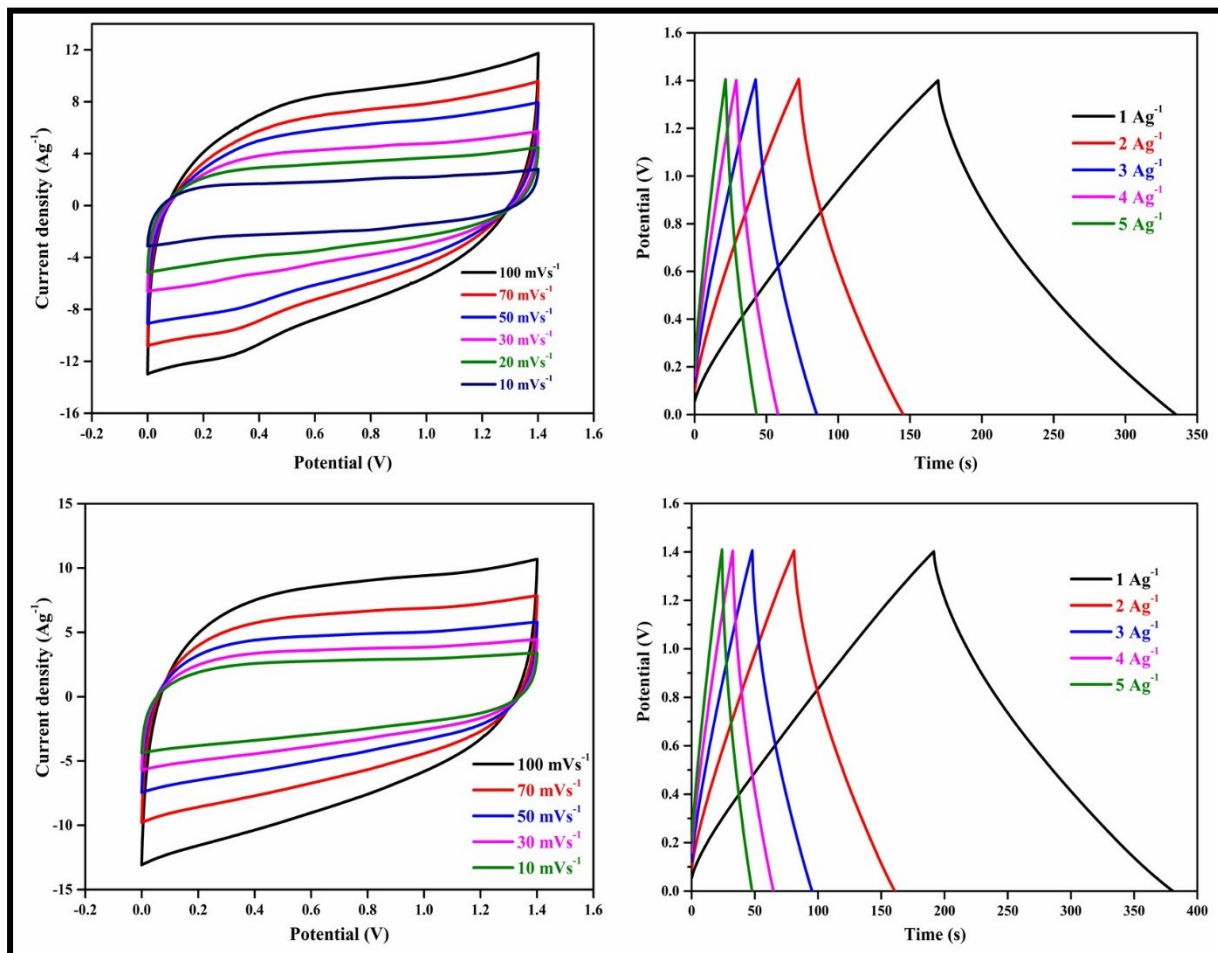


Figure S18. (a, c) Cyclic voltammetry curve at various scan rate from 100 mVs^{-1} to 10 mVs^{-1} and (b, d) Charge-Discharge curve at various current density of 1 Ag^{-1} to 5 Ag^{-1} of BNUG4//BNUG4 at 1.2 V before and after cyclic stability

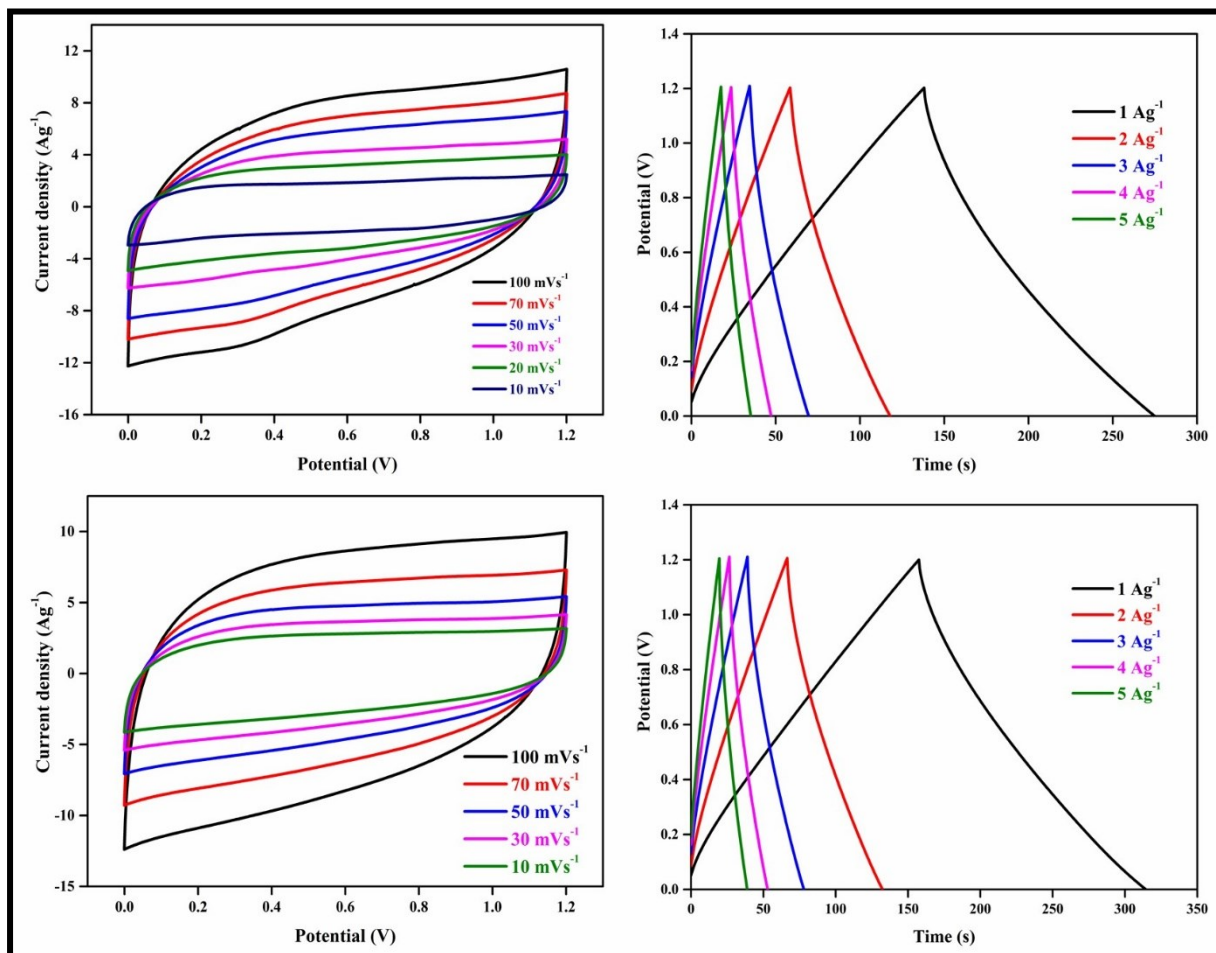


Figure S19. (a, c) Cyclic voltammetry curve at various scan rate from 100 mVs^{-1} to 10 mVs^{-1} and (b, d) Charge-Discharge curve at various current density of 1 Ag^{-1} to 5 Ag^{-1} of BNUG4//BNUG4 at 1.0 V before and after cyclic stability

