Electronic Supplementary Information

Development of pristine and Au-decorated Bi_2O_3/Bi_2WO_6 nanocomposites for supercapacitor electrode

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1. Calculation of electrochemical properties

a. Specific capacitance calculated using cyclic voltammetry,

$$Csp = \frac{\int I(V)dv}{2[m\ s\ \Delta V]}$$

Where, m is the mass of electrode deposited on substrate, s is the scan rate, ΔV is the potential window and ∫I(V) dV represents area under the curve.

b. Specific capacitance calculated using charge-discharge cycle,

$$Csp = \frac{I\Delta t}{m\Delta V}$$

Where, I is the current, m is the mass of electrode, Δt is discharge time and ΔV is the potential window. Current/mass is given by current density i.e. A/g and discharge time/ potential window can be obtained by the slope of the discharging curve from galvanostatic charge-discharge plot (Δt/ΔV).

Energy density of symmetric cell is calculated using following formula,

$$Ed = \frac{1}{2} Cspx(\Delta V)^2$$

Where, Csp is a specific capacitance calculated from GCD and ΔV is the potential window. (Wh/kg)

Power density of symmetric cell is calculated by using following formula,

$$Pd = \frac{Ed}{\Delta t}$$

Where, Ed is the energy density and Δt is the discharging time. (W/kg)

Figure S1

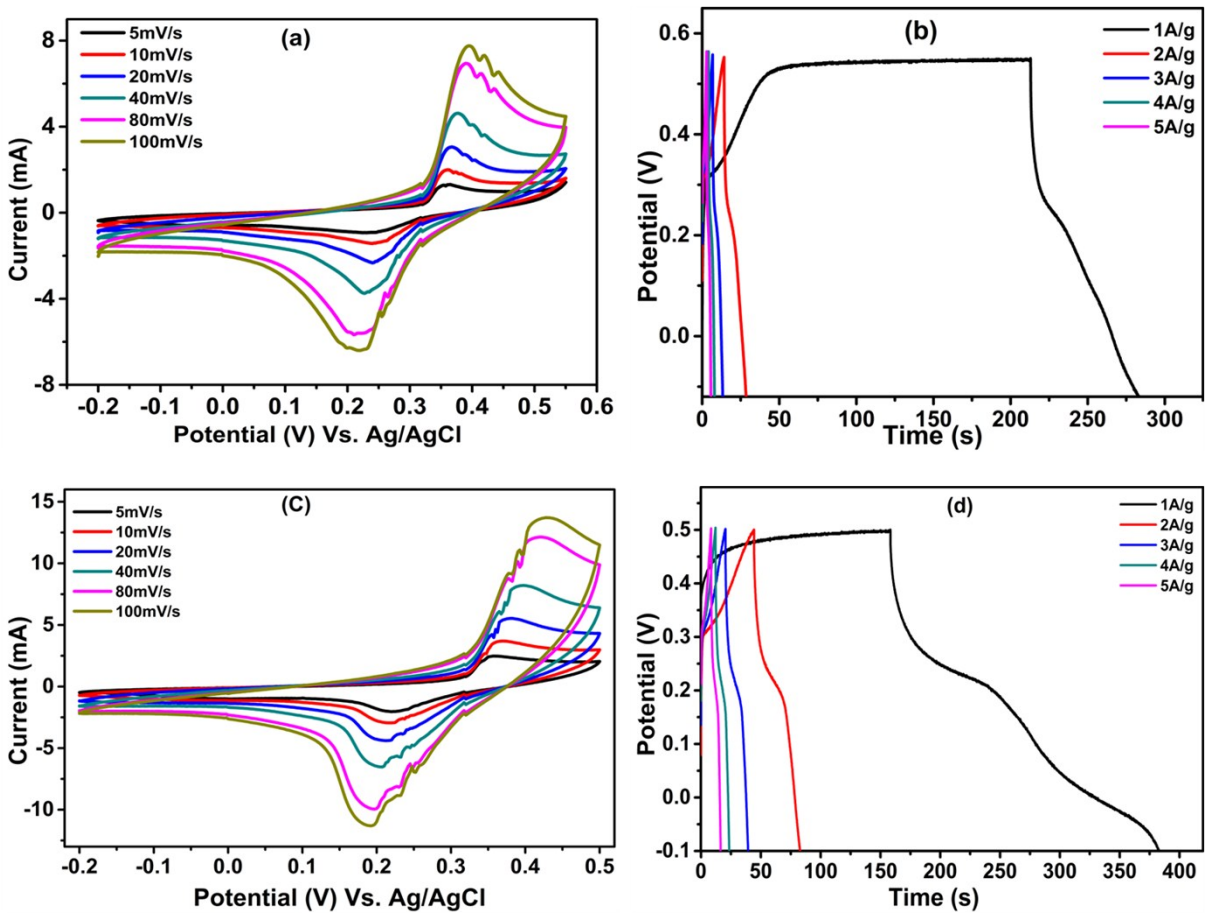

Fig. S-1(a) CV curves BO/BWO at different scan rates, (b) GCD curves of BO/BWO at different current densities, (c) CV curves of Au-BO/BWO at different scan rates and (d) GCD curves of Au-BO/BWO at different current densities.

Figure S2

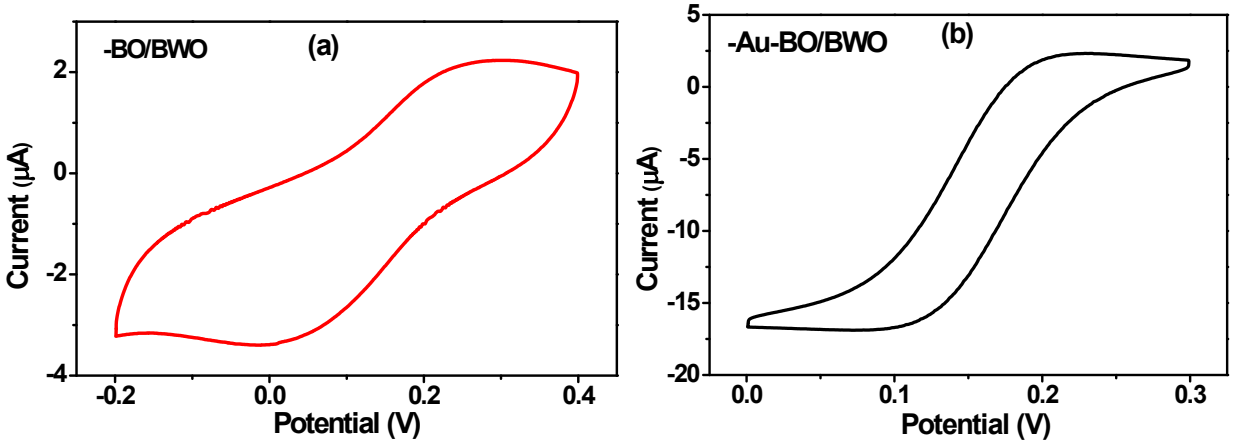

Fig S-2 CV curves of (a) BO/BWO and (b) Au-BO/BWO in 0.1 M of $[Fe(CN)_6]^{-3/-4}$ in 0.1M KCl solution.

Figure S3

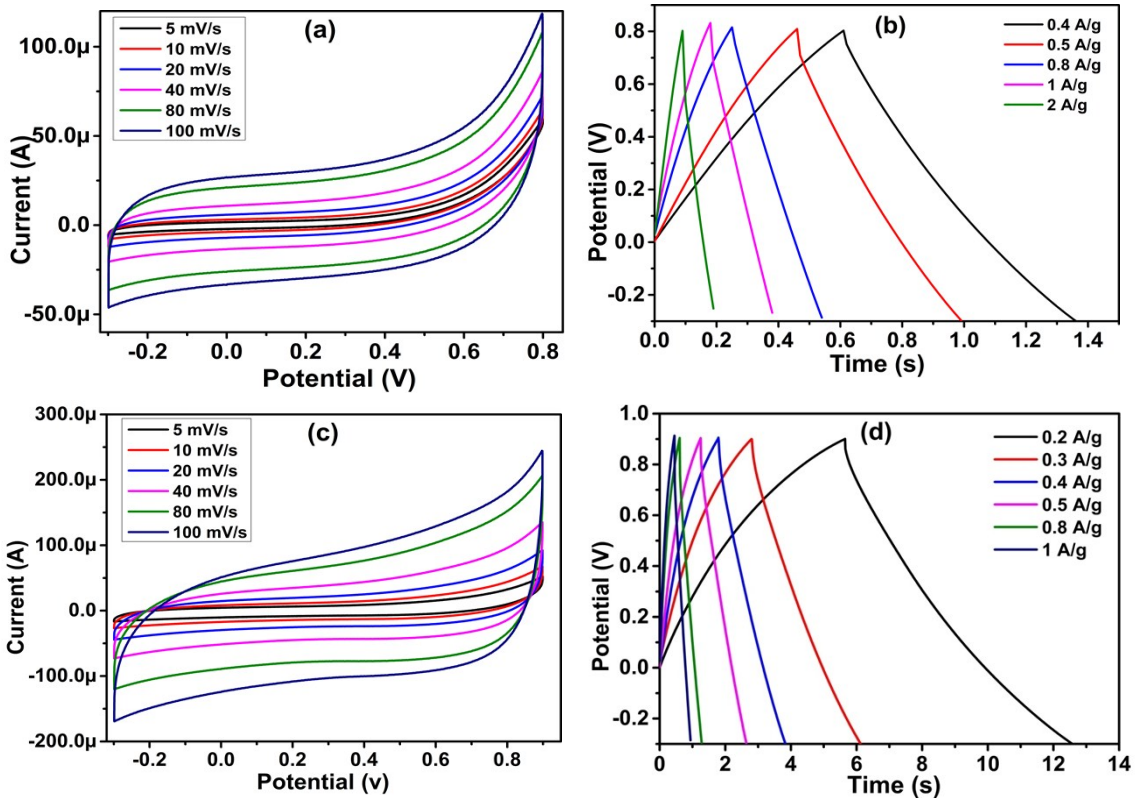

Fig S-32-electrode symmetric cell electrochemical measurements: (a) CV curves of BO/BWO for different scan rates, (b) GCD curves of BO/BWO at different current density. (c) CV curves of Au-BO/BWO for different scan rates, (b) GCD curves of Au- BO/BWO at different current density