SUPPORTING INFORMATION

All-solid-state Flexible Asymmetric Micro Supercapacitors Based on Cobalt Hydroxide and Reduced Graphene Oxide Electrodes

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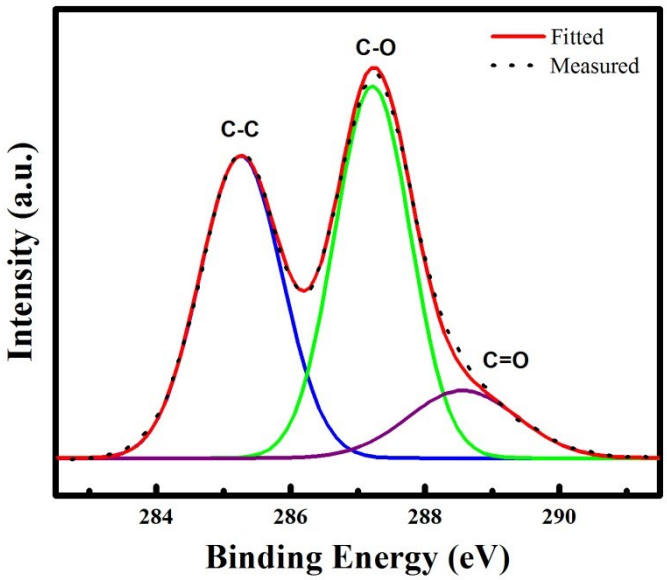

Figure S1. X-ray Photoelectron Spectroscopy (XPS) characteristics: high-resolution C1s spectra of GO.

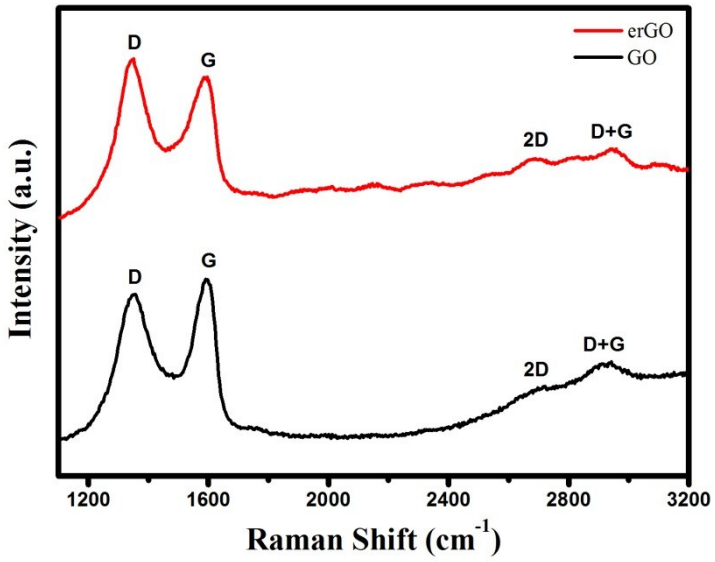

Figure S2. Raman spectra of electrochemically reduced graphene oxide (red) and pristine graphene oxide (black).

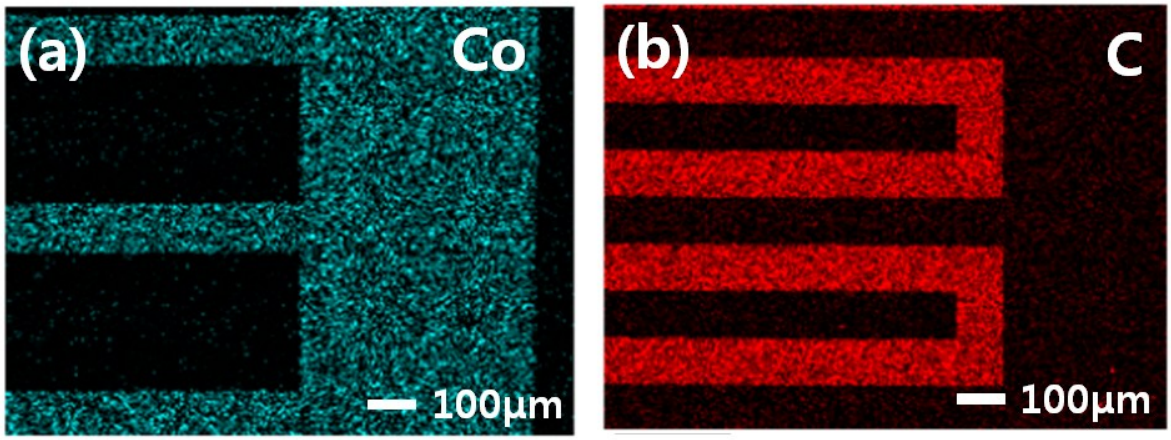

Figure S3. SEM-EDS images of (a) $Co(OH)_2$ (b) electrochemically reduced graphene oxide (erGO) (Only right side of elecrtrode was coated)

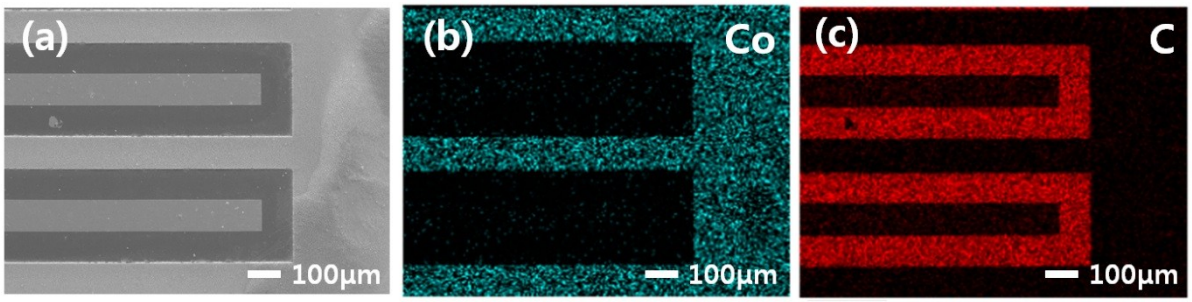

Figure S4. (a) SEM image of $Co(OH)_2$//erGO a asymmetric micro-SC. SEM-EDS images of $Co(OH)_2$//erGO a micro-SC (b) cobalt and (c) carbon

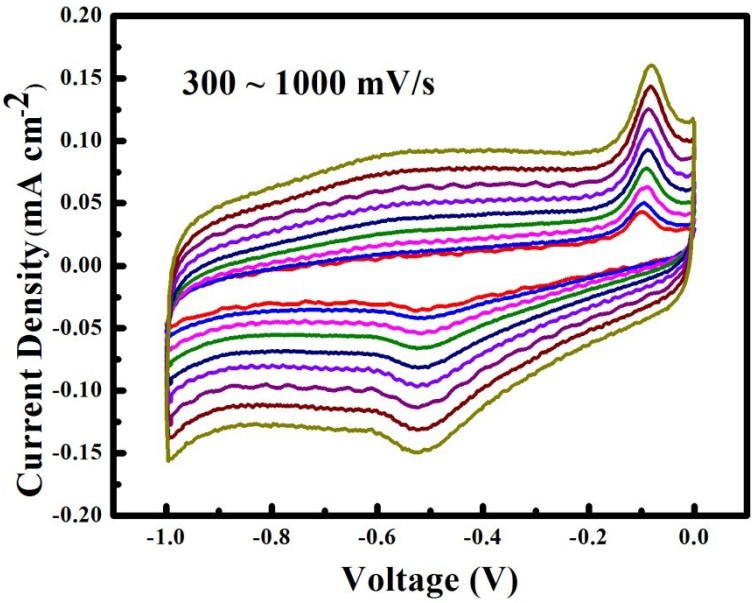

Figure S5. Cyclic Voltammetry curves of erGO half cell at high scan rate.

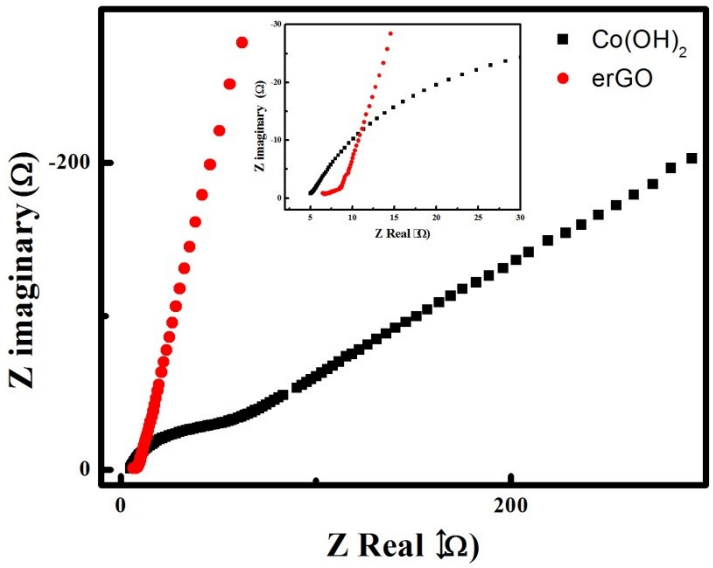

Figure S6. Electrochemicaly impedance spectroscopy within 250 kHz and 0.1 Hz frequency range of $Co(OH)_2$ and erGO half cell. Inset shows high frequency region.

Active materials	Electrolyte	Cell type	Specific Capacitance [Voltage]	Energy Density	Power Density	Ref
$CoOH_2$-$CoOH_2$	PVA-KOH-KI	Symmetric	10.16 $mF{\cdot}cm^{-2}$ (0.08$mA{\cdot}cm^{-2}$) [0.8V]	0.90 $\mu Wh{\cdot}cm^{-2}$	32.73 $\mu W{\cdot}cm^{-2}$	Our
$CoOH_2$-erGO	PVA-KOH-KI	Asymmetric	2.28 $mF{\cdot}cm^{-2}$ (0.05$mA{\cdot}cm^{-2}$) [1.4V]	0.34 $\mu Wh{\cdot}cm^{-2}$	100.38 $\mu W{\cdot}cm^{-2}$	Our
$CoOH_2$-$CoOH_2$	1M KOH	Symmetric	137.71 $mF{\cdot}cm^{-2}$ (0.16$mA{\cdot}cm^{-2}$) [0.8V]	12.24 $\mu Wh{\cdot}cm^{-2}$	65.47 $\mu W{\cdot}cm^{-2}$	Our
$CoOH_2$-erGO	1M KOH	Asymmetric	43.55 $mF{\cdot}cm^{-2}$ (0.82$mA{\cdot}cm^{-2}$) [1.4V]	11.85 $\mu Wh{\cdot}cm^{-2}$	572.83 $\mu W{\cdot}cm^{-2}$	Our
PANI-MnO_x	PVA-H_2SO_4	Symmetric	94.73 $mF{\cdot}cm^{-2}$ (0.1$mA{\cdot}cm^{-2}$) [0.7V]	6.3 $\mu Wh{\cdot}cm^{-2}$	35 $\mu W{\cdot}cm^{-2}$	[51]
MnO2	PVA-H_2SO_4	Symmetric	~15 $F{\cdot}cm^{-3}$ (5$mV{\cdot}s^{-1}$) [0.8V]	50 $\mu Wh{\cdot}cm^{-3}$	3.4 $\mu W{\cdot}cm^{-3}$	[52]
PPyGO-RuO_2	PVA-KOH-KSCN	Symmetric	26.250 $mF{\cdot}cm^{-2}$ [1.0V]	3.6 $\mu Wh{\cdot}cm^{-2}$	1.3125 $mW{\cdot}cm^{-2}$	[53]
GF/MWNT-COOH/MnO_x	PVA-H_3PO_4	Symmetric	0.27 $mF{\cdot}cm^{-2}$ (2$V{\cdot}s^{-1}$) [0.8V]	-	-	[59]
PANI	PVA-H_2SO_4	Symmetric	67.4 $mF{\cdot}cm^{-2}$ [0.8V]	-	-	[60]
Carbon	PVA-H_3PO_4	Symmetric	~800 $\mu F{\cdot}cm^{-2}$ (10 $mV{\cdot}s^{-1}$) [0.8V]	-	-	[61]
rGO	PVA-H_2SO_4	Symmetric	56.5 $F{\cdot}cm^{-3}$ (0.06$A{\cdot}cm^{-3}$) [1.0V]	-	-	[62]
rGO	PVA-H_3PO_4	Symmetric	0.95 $mF{\cdot}cm^{-2}$ (0.43 $mA{\cdot}cm^{-2}$)[0.8V]	-	-	[63]
MnO_2-AC	0.1M Na_2NO_3	Asymmetric	30 $mF{\cdot}cm^{-2}$ (20 $mV{\cdot}s^{-1}$) [1.5V]	-	-	[64]
GQD	0.5M Na_2SO_4	Symmetric	468.1 $\mu F{\cdot}cm^{-2}$ (15$\mu A{\cdot}cm^{-2}$) [1.0V]	0.154 $\mu Wh{\cdot}cm^{-2}$	56.7 $\mu W{\cdot}cm^{-2}$	[54]
SiNWs	$PYR_{13}TFSI$	Symmetric	23.42 $\mu F{\cdot}cm^{-2}$ (1$mA{\cdot}cm^{-2}$) [4.0V]	0.053 $\mu Wh{\cdot}cm^{-2}$	182 $mW{\cdot}cm^{-2}$	[55]
SiNWs	EMI-TFSI	Symmetric	440 $\mu F{\cdot}cm^{-2}$ (100μA) [4.0V]	0.059 $\mu Wh \cdot cm^{-2}$	472 $\mu W{\cdot}cm^{-2}$	[56]
RuO_2/CNT	0.1M Na_2SO_4	Symmetric	37.23 $mF{\cdot}cm^{-2}$ [1.0V]	3.07 $\mu Wh{\cdot}cm^{-2}$	19.04 $mW{\cdot}cm^{-2}$	[50]
Carbide derived carbon	1M NEt_4BF_4	Symmetric	1.5 $mF{\cdot}cm^{-2}$ (100 $mV{\cdot}s^{-1}$) [2.0V]	0.83 $\mu Wh{\cdot}cm^{-2}$	84 $mW{\cdot}cm^{-2}$	[57]
VN/NiO	1M KOH	Asymmetric	1.38 $mF{\cdot}cm^{-2}$(1.6$mA{\cdot}cm^{-2}$) [1.3V]	1.0 $\mu Wh{\cdot}cm^{-2}$	40 $mW{\cdot}cm^{-2}$	[58]

Table S1. Summary of performances of in-plane micro supercapacitor.