

## Supporting Information

### **Uniformly anchoring Sb<sub>2</sub>O<sub>5</sub> nanoparticles on graphene sheets via Co<sup>2+</sup>-induced deposition for enhanced lithium/sodium-ion storage**

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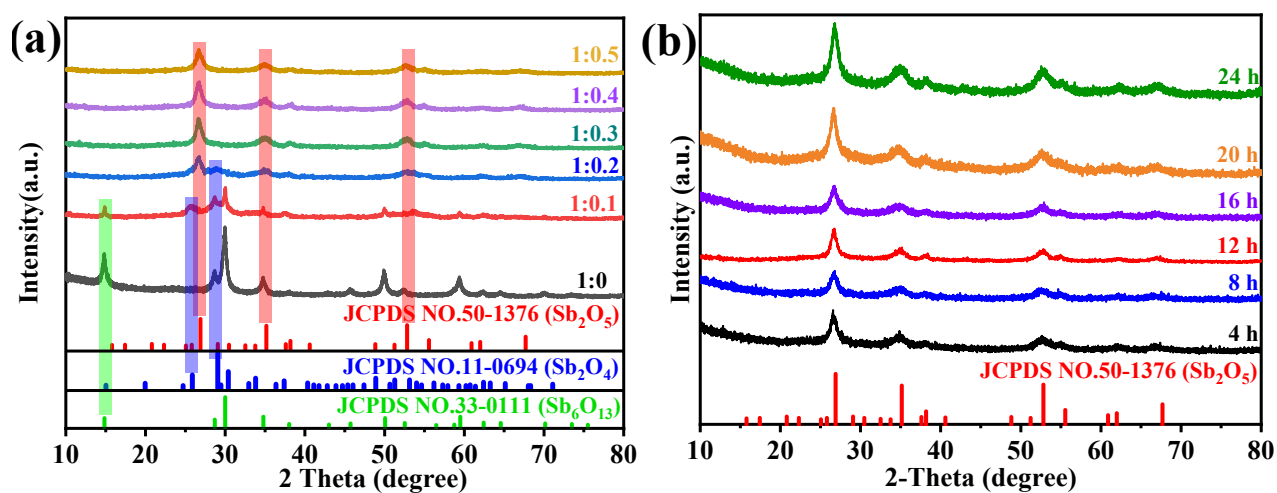


Figure S1 XRD patterns of Co-Sb<sub>2</sub>O<sub>5</sub>/rGO electrodes with different (a) Sb/Co molar ratios for 12-h solvothermal treatment and (b) solvothermal time at a certain Sb/Co molar ratio of 1:0.3.

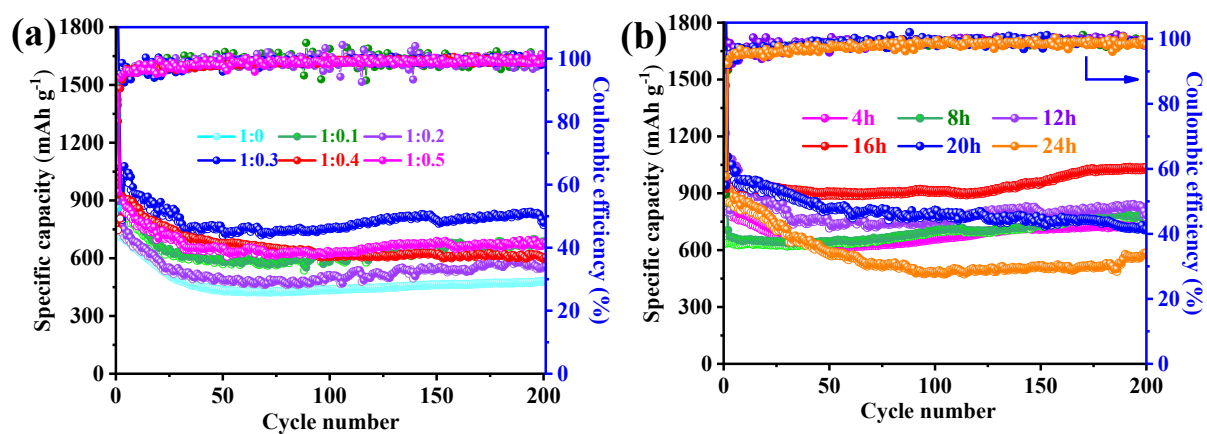


Figure S2 Cycling stability of Co-Sb<sub>2</sub>O<sub>5</sub>/rGO electrodes with different (a) Sb/Co molar ratios for 12-h solvothermal treatment and (b) solvothermal time at a certain Sb/Co molar ratio of 1:0.3.

**Table S1.** Comparison on electrochemical performance of  $Sb_xO_y$ -based electrodes for LIB and SIB applications.

Materials	Initial reversible capacity (mAh g <sup>-1</sup> / A g <sup>-1</sup> )	Capacity after (x) cycles (mAh g <sup>-1</sup> / cycles)	Capacity at high rate (mAh g <sup>-1</sup> / A g <sup>-1</sup> )	Long-term cycling capacity after (x) cycles (mAh g <sup>-1</sup> / A g <sup>-1</sup> / cycles)	Potential (V)	Ref.
Sb <sub>2</sub> O <sub>3</sub> thin films	LIB: 794 / -	LIB: ~750 / 70	-	-	0.01-3	1
Sb <sub>2</sub> O <sub>3</sub> /rGO	LIB: 899 / 0.05	LIB: 562 / 100	LIB: 155 / 0.3	-	0.01-3	2
Sb <sub>2</sub> O <sub>3</sub> /rGO	LIB: 855 / 0.2	LIB: 513 / 300	LIB: 397 / 2	-	0.01-3	3
Sb <sub>2</sub> O <sub>3</sub> /rGO	LIB: 1355 / 0.1	LIB: 808 / 120	LIB: 188 / 5	LIB: 525 / 0.6 / 700	0.01-3	4
Sb <sub>2</sub> O <sub>4</sub> /rGO	LIB: 1170 / 0.1	LIB: 798 / 200	LIB: 320 / 3	LIB: 428 / 0.55 / 500	0.01-3	5
Sb <sub>2</sub> O <sub>4</sub> @PPy	LIB: 989.4 / 0.1	LIB: 932 / 100	LIB: 552.8 / 2	LIB: 542.8 / 1.0 / 250	0.01-3	6
hollow Sb <sub>2</sub> O <sub>4</sub>	LIB: 727.1 / 0.1	LIB: 700 / 50	LIB: 370.9 / 2	LIB: 415 / 1 / 100	0.01-3	7
Sb <sub>6</sub> O <sub>13</sub> /rGO	LIB: 1271 / 0.1	LIB: 1109 / 140	LIB: 201 / 3	LIB: 430 / 0.5 / 300	0.01-3	8
Sb <sub>6</sub> O <sub>13</sub> @C	SIB: 337 / 0.1	SIB: 375 / 125	SIB: 239 / 1	-	0.005-2.5	9
Mn-polyantimonic acide (PAA)	-	LIB: 544 / 100	LIB: 271 / 5	LIB: 700 / 800	0.01-3	10
V-PAA	LIB: 934 / 0.1	-	LIB: 560 / 5	LIB: 731 / 1 / 1200	0.01-3	11
PAA/rGO	LIB: 847 / 0.1	-	LIB: 258 / 10	LIB: 509 / 1 / 800	0.01-3	12
Sb <sub>2</sub> O <sub>3</sub> -Fe-C	LIB: 770 / 0.5 SIB: 319 / 0.1	LIB: 658 / 100	LIB: 680.3 / 10 SIB: 182 / 10	LIB: 546.6 / 1 / 1000 SIB: 226.8 / 1 / 300	0.01-3	13
Sb <sub>2</sub> O <sub>5</sub> /Co-C	LIB: 1102 / 0.1	LIB: 1009 / 100	LIB: 647.2 / 1	LIB: 462.8 / 1 / 700	0.01-3	14
Co-Sb <sub>2</sub> O <sub>5</sub> /rGO	LIB: 916.8 / 0.2 SIB: 441.1 / 0.1	LIB: 1027 / 200 SIB: 352.3 / 100	LIB: 507.3 / 3 SIB: 252.3 / 1	LIB: 648.1 / 0.5 / 500	0.01-3.0	This work

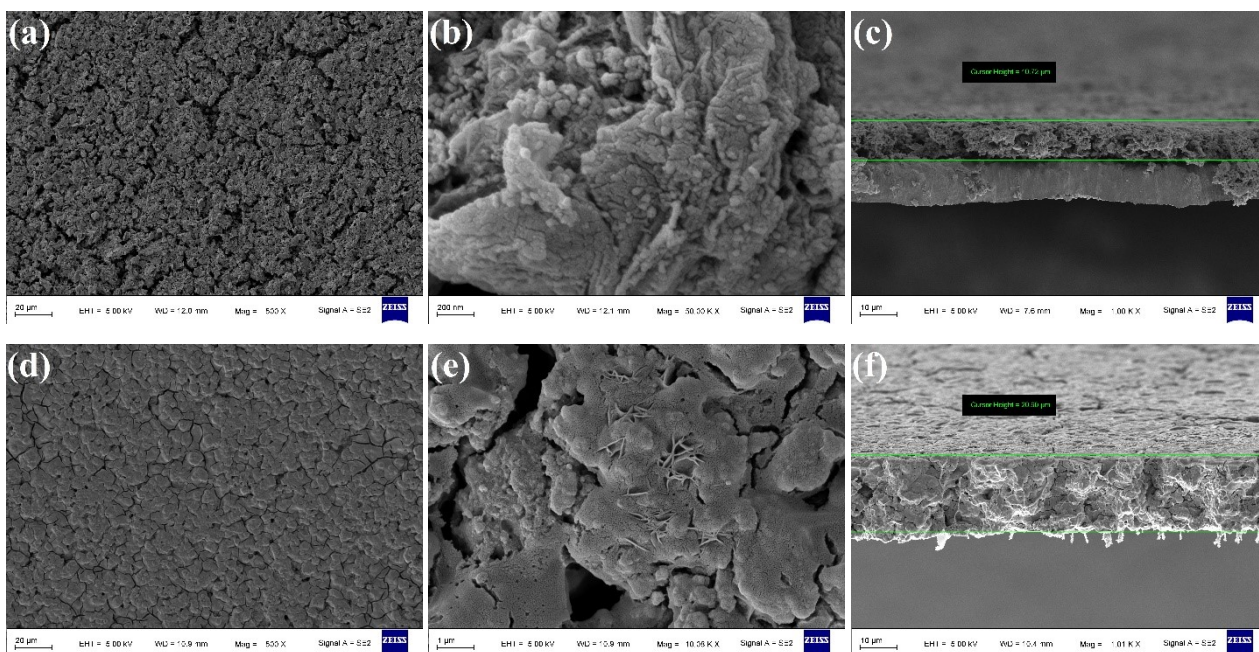


Figure S3 Top-view surface and cross-sectional SEM images of Co-Sb<sub>2</sub>O<sub>5</sub>@rGO electrodes before cycling (a, b, c) and after 200 cycles (d, e, f).

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