

Support Information for

Rational Construction of Metal Core for Smart Combination with $\text{Li}_4\text{Ti}_5\text{O}_{12}$ as integrated Arrays with Superior High-Rate Li-ion storage performance

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Table S1. Electrochemical performance of different LTO-based electrodes

Reference	Rate performance (mA h g^{-1})	Capacity loss in long cycle
Our work	174 (1 C)	9.7% loss after 3000 cycles at 20 C
	167 (5 C)	
	161 (10 C)	
	155 (20 C)	
	146 (50 C)	
	140 (100 C)	
Hydrogenated $\text{Li}_4\text{Ti}_5\text{O}_{12}$ nanowire¹	173 (0.2 C)	5 % loss after 100 cycles at 5 C
	166 (1 C)	
	157 (5 C)	
	145 (10 C)	
	135 (20 C)	
	125 (30 C)	
$\text{Li}_4\text{Ti}_5\text{O}_{12}$ hollow spheres²	172 (1 C)	12 % loss after 300 cycles at 5C
	150 (2 C)	
	139 (3 C)	
	128 (5 C)	
	115 (10 C)	
	104 (20 C)	
Rutile TiO_2 coated $\text{Li}_4\text{Ti}_5\text{O}_{12}$³	178 (1 C)	2 % loss after 100 cycles at 20 C
	170 (5 C)	
	161 (10 C)	

	152 (20 C)	
	141 (30 C)	
	110 (60 C)	
	168.1 (0.2 C)	
	165.8 (0.5 C)	
	162.4 (1 C)	
Hierarchically porous Li₄Ti₅O₁₂⁴	156.8 (2 C)	4.8 % loss after 200 cycles at 2 C
	143.9 (3 C)	
	134.6 (5 C)	
	116 (10 C)	
	92.3 (20 C)	
	171.4 (0.1 C)	
	168.8 (1 C)	
	150 (5 C)	
Li₄Ti₅O₁₂-graphene composite⁵	136.4 (10 C)	2.9 % loss after 100 cycles at 60 C
	122 (20 C)	
	105 (30 C)	
	82.7 (60 C)	
	161.7 (0.2 C)	
	145 (1 C)	
	138.5 (2 C)	
Li₄Ti₅O₁₂ nanoparticles with carbon⁶	130.8 (5 C)	5.4 % loss after 1000 cycles at 20 C
	121.3 (10 C)	
	109.7 (20 C)	
	92.6 (40 C)	
	73.4 (80 C)	
	171 (0.5 C)	
porous Li₄Ti₅O₁₂ with N-doped carbon⁷	169 (1 C)	17 % loss after 2200 cycles at 2 C
	145 (5 C)	
	125 (10 C)	
	160 (1 C)	
Li₄Ti₅O₁₂ with Ti and carbon⁸	145 (5 C)	10 % loss after 100 cycles at 1 C
	155 (10 C)	
	75 (20 C)	
	161 (0.5 C)	
Cr-doped Li₄Ti₅O₁₂⁹	159 (1 C)	None
	145 (5 C)	
	129 (10 C)	
	140 (0.1 C)	
Phosphiated Li₄Ti₅O₁₂¹⁰	130 (0.5 C)	None
	125 (1 C)	
	100 (10 C)	
	171 (0.5 C)	
Mesoporous Li₄Ti₅O₁₂ with rGO¹¹	145 (1 C)	15 % loss after 2000 cycles at 20 C

	138 (5 C)	
	137 (10 C)	
	136 (20 C)	
	132 (40 C)	
	165 (1 C)	
Self-supported	154 (10 C)	
Li₄Ti₅O₁₂-C nanotube arrays¹²	135 (30 C)	10 % loss after 500 cycles at 10 C
	106 (60 C)	
	81 (100 C)	
	151 (1 C)	
	129 (5 C)	
3D nanoarchitected	125 (10 C)	
Li₄Ti₅O₁₂¹³	120 (30 C)	2 % loss after 1000 cycles at 50 C
	115 (50 C)	
	103 (100 C)	

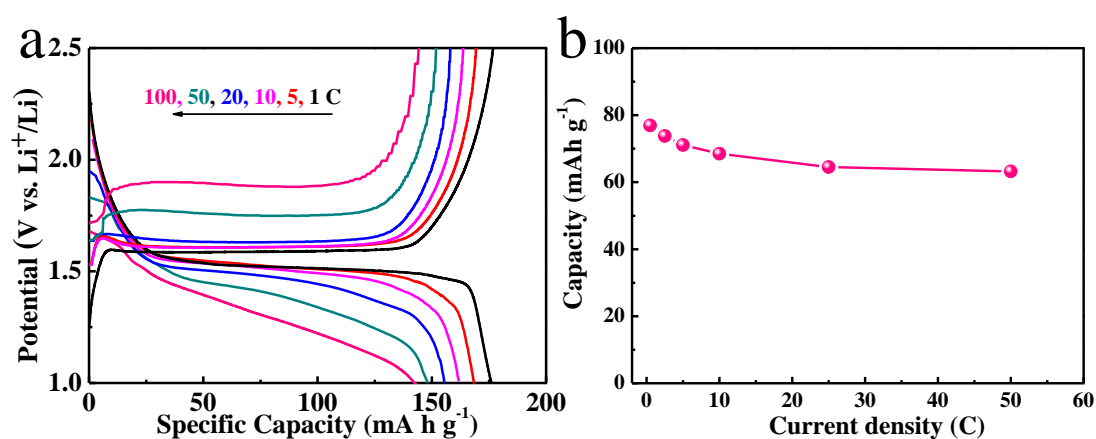


Fig. S2 (a) Charge/discharge curves at different rates; (b) Specific capacities based on the total weight of Co/LTO arrays (Co+LTO)

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