Supporting Information

Hierarchical α-MoC_{1-x} Hybrid Nanostructure for Lithium-Ion Storage

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Figure S1. TGA curve of α -MoC_{1-x}/NCF in air.



Figure S2. N_2 adsorption/desorption isotherm of α -MoC_{1-x}/NCF annealed at different temperatures.



Figure S3. The influence of carburization temperatures on the composition and morphology of final products. (a) XRD patterns of final products carburized at 650 °C and 900 °C; SEM images of final products carburized at (b,c) 650 °C and (d,e) 900 °C.



Figure S4. Electrochemical performances of hybrid products prepared (a) from different Mo/dopamine ratios, and (b) under different carburization temperatures.



Figure S5. Nyquist plots of α -MoC_{1-x}/NCF annealed at different temperatures at the charged state after the first cycle.

Materials	Specific Capacity (mAh/g)	Rate Canability (mAh/g)	Reference
α-MoC _{1-x} /NCF			— This work
	815 at 500 mA/g after 100 cycles	1100 at 200 mA/g	
	640 at 1 A/g after 300 cycles	420 at 10 A/g	
MoO ₂ /Mo ₂ C/C spheres	800 at 100 mA/g after 100 cycles	700 at 500 mA/g	<i>Carbon.</i> 2016 , <i>96</i> , 1200
	650 at 500 mA/g after 100 cycles	600 at 1 A/g	
MoC _{0.654} @CNS	815 at 500 mA/g after 680 cycles	950 at 200 mA/g	J. Am. Chem. Soc. 2015, 137, 5480
		500 at 5A/g	
Mo ₂ C–C hybrid nanospheres	521 at 500 mA/g after 50 cycles	628 at 100 mA/g	Nanoscale. 2014 , 6, 6151
	401 at 1 A/g after 50 cycles	400 at 1 A/g	
Mo ₂ C/N-C MHNWs	941 at 100 mA/g after 50 cycles	821 at 1 A/g	J. Mater. Chem. A 2013 , 00, 1
	733 at 2 A/g after 700 cycles	486 at 5 A/g	
Mo ₂ C-RGO	856 at 100 mA/g after 400 cycles	830 at 100 mA/g	<i>Mater. Res. Bull.</i> 2016 , <i>73</i> , 459
	456.4 at 1 A/g after 400 cycles	450 at 1 A/g	
MoO ₂ /Mo ₂ C/C hybrid nanowires	950 at 200 mA/g after 320 cycles	635 at 1 A/g	ACS Appl. Mater. Interfaces 2016 , 8, 19987
	602 at 2 A/g after 500 cycles	595 at 5 A/g	
MoO ₂ -Mo ₂ C-C composite	724 at 200 mA/g after 50 cycles	Not available	<i>J. Power Sources.</i> 2016 , <i>307</i> , 552
	528 at 1 A/g after 70 cycles		
Mo ₂ C/GR hybrids	813 at 100 mA/g after 100cycles	720 at 200 mA/g	J. Mater. Chem. A 2015, 3, 17403
		310 at 1.6 A/g	
MoO ₂ /Mo ₂ C heteronanotubes	623 at 500 mA/g after 140 cycles	Not available	<i>Adv. Funct. Mater.</i> 2014 , <i>24</i> , 3399
	510 at 1 A/g after 140 cycles		
TiC/NiO Core/Shell nanoarchitecture	507 at 200 mA/g after 60 cycles	600 at 500 mA/g	ACS Appl. Mater. Interfaces. 2015, 7, 11842
		368 at 3 A/g	
Nb ₂ CT _x /CNT	420 at 0.5 C	270 at 10 C	<i>Adv. Mater.</i> 2015 , 27, 3501–3506
	370 at 2.5 C	160 at 20 C	

Table S1. Electrochemical performances of transition metal carbide based materials

 previously reported for lithium-ion batteries.