

Carbon-MEMS based Rectangular Channel Microarrays Embedded Pencil Trace for High Rate and High-Performance Lithium-ion Battery Application

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Supporting Information

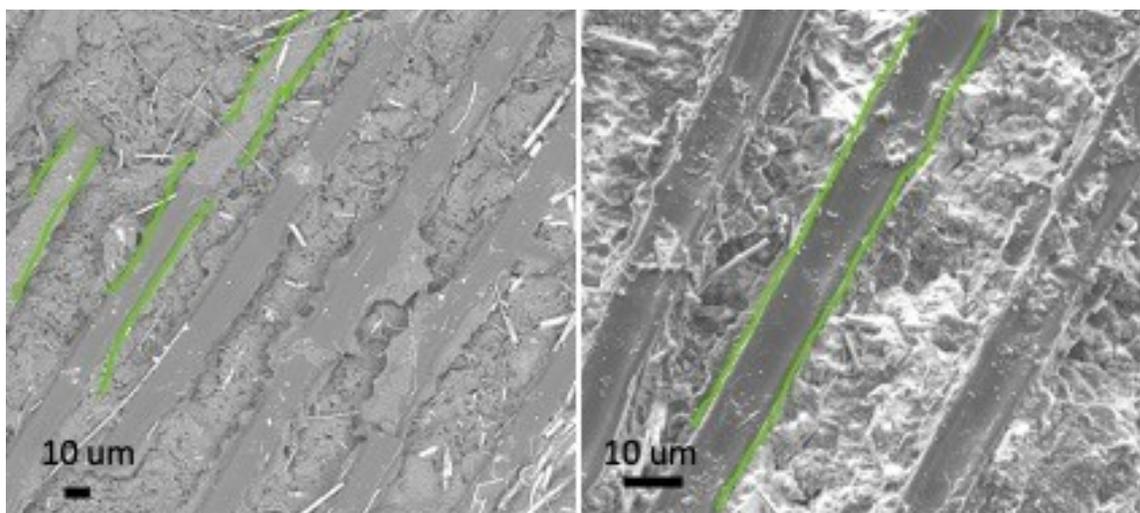


Fig. S1 SEM image of 3D-RCPTSS after cycling the cell

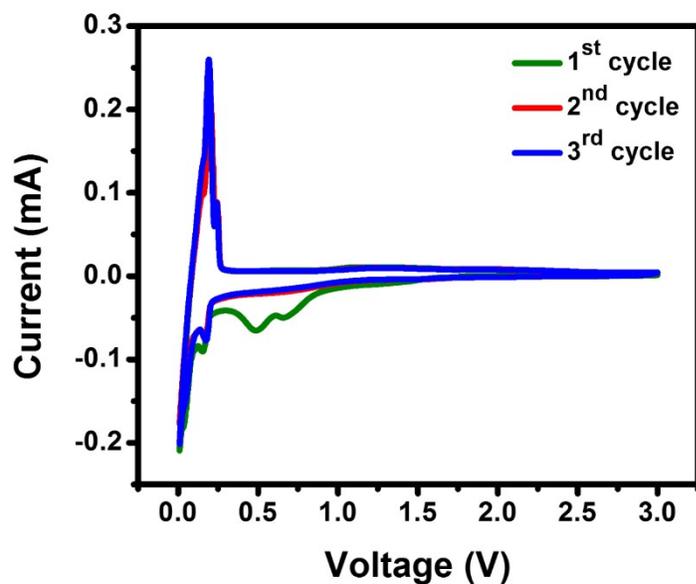


Fig. S2 Cyclic voltammetry only PTSS at scan rate of 0.1 mVs^{-1} in the voltage window of 0.01 to 3V

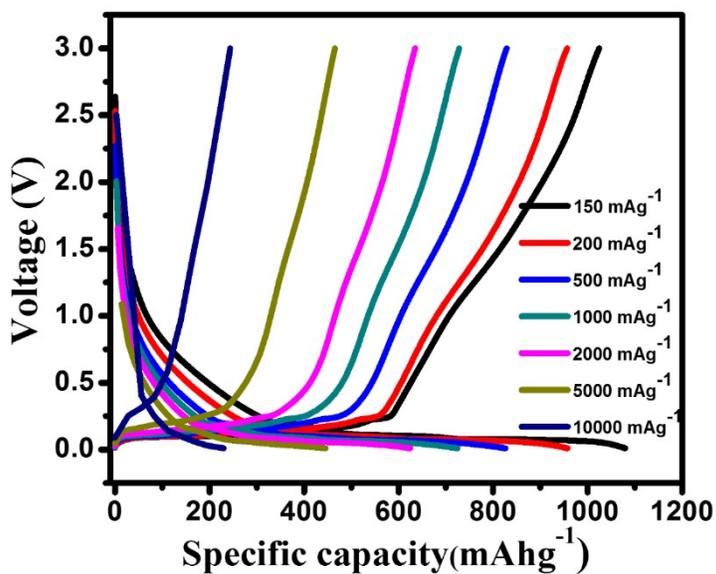
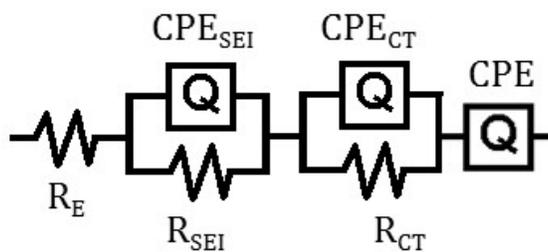


Fig. S3 GCD only PTSS at different scan rates in the voltage window of 0.01 to 3V

Table 1:

Electrode type	Specific capacity	Substrate	Current density [mA g ⁻¹]
CuO flakes over patterned Cu foil ³⁰	550 mAh g ⁻¹	Copper	0.1 C rate (100 cycles)
C-MEMS ³¹	~220 mAh g ⁻¹	Silicon	0.5828 mA (9 cycles)
C-MEMS (cross shaped) ¹³	~200mAhg ⁻¹	Silicon	76.4 μA cm ⁻² (6 cycles)
C-MEMS ¹⁰	596 mAh g ⁻¹	Stainless steel	37.4 mA g ⁻¹ (160 cycles)
CMEMS pillars ³²	538 mAh g ⁻¹	Pencil traced SS	500 mA g ⁻¹
3DRC-PTSS (Present study)	~400 mAh g⁻¹	Pencil traced SS	10,000 mA g⁻¹ (1750 cycles)

**Fig. S4** Electrochemical impedance circuit

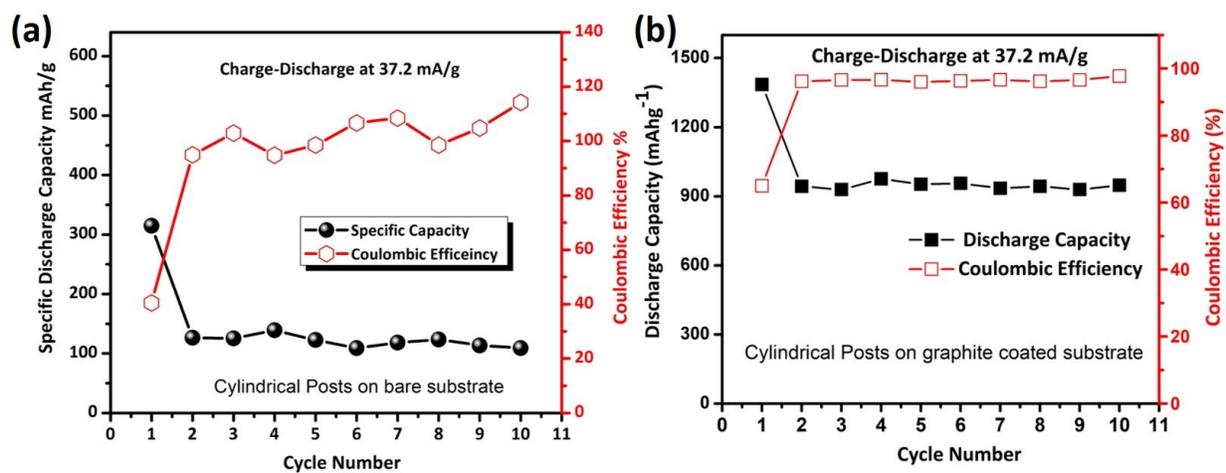


Fig. S5: (a) GCD of cylindrical posts on bare SS substrate at 37.2 mA/g (b) GCD of cylindrical posts on pencil coated SS substrate at 37.2 mA/g