Supporting Information

Silica depleted rice hull ash (SDRHA), an agricultural waste, as a high-performance hybrid lithium-ion capacitor.

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Optical images of RHA

Fig. S1. Optical image of **a**. RHA, **b**. washed RHA, and **c**. SDRHA.

Microstructure of SDRHA electrode cast on Cu foil

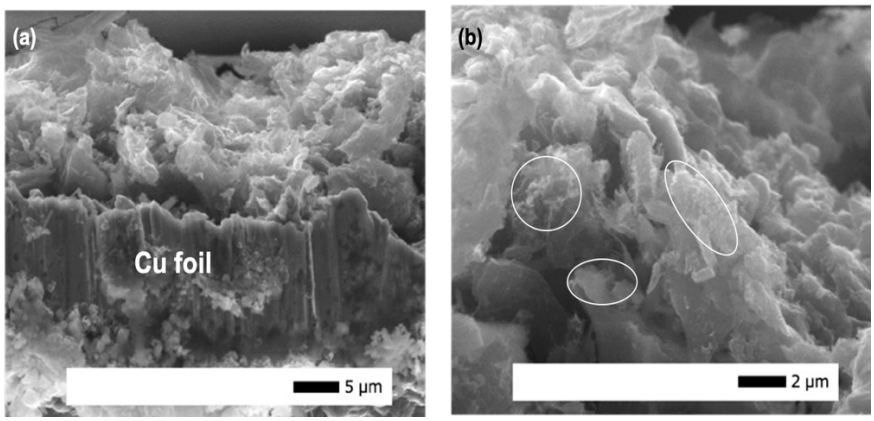

Fig S2. **a**. SEM fracture surface images of Cu/SDRHA electrode and **b**. SDRHA electrode with circled C65 additives.

XPS analysis of SDRHA

Table S1. Atomic positions and weight percent of SDRHA powders deduced from XPS study.

Elements	Position	Atomic wt. %
O 1s	530	4.05
C 1s	284	69.35
N 1s	396	12.02
Ca 2p	346	0.87

Galvanostatic cycle of SDRHA/NMC622

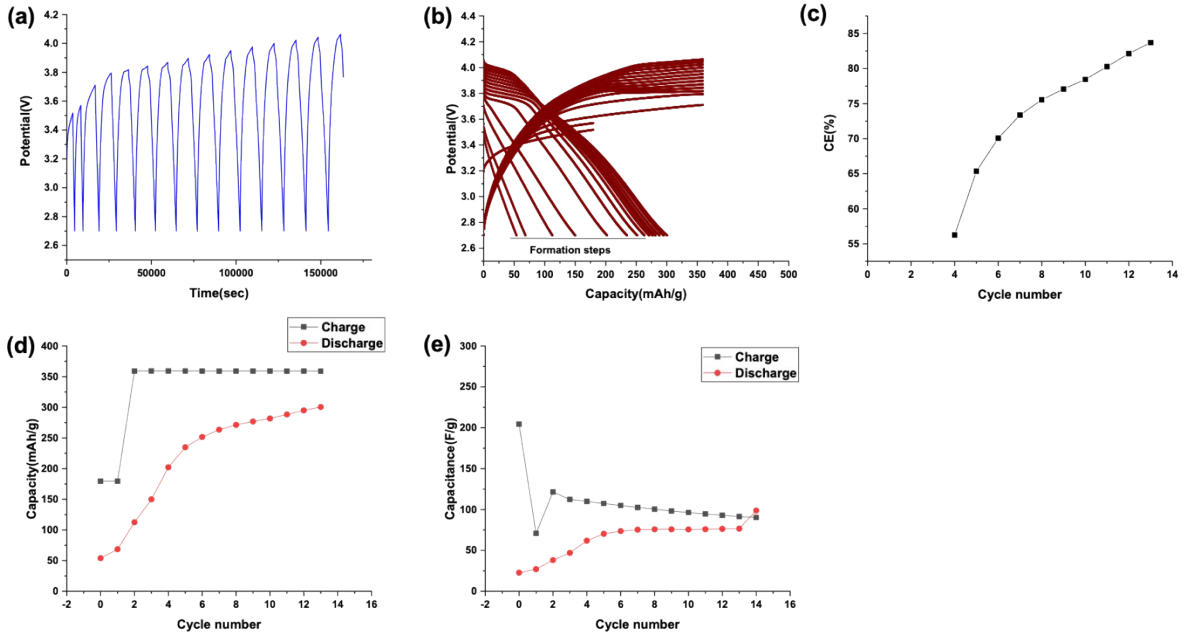

Fig S3. Electrochemical performance of SDRHA/NMC622 cell before SEI formation. **a**. potential vs time profile, **b.** charge-discharge curves, **c**. Coulombic efficiency, **d**. specific capacity, and **e**. specific capacitance as function of cycle number.

Table S3. Charge-transfer resistance of the half and full hybrid LICs.

Electrode	R_e (Ω)	C_{dl} (μF)	Rct (Ω)
SDRHA/Li	3.5	1 .2	4.5
SDRHA/NMC622	3	2.5	18.4