Supporting Information

Conformal phosphating hierarchical interface of

CC/CoNiMn-P for hybrid supercapacitors with high rate

stable cycling

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Figure S1. (a1, a2) SEM images of CC/CoNiMn-OH-1 and (b1, b2) SEM images of CC/CoNiMn-OH-3.

Figure S2. (a1, a2) SEM images of CC/CoNiMn-P-450 and (b1, b2) SEM images of CC/CoNiMn-P-550.



Figure S3. TEM image of CC/Co-MOF.



Figure S4. XRD pattern of CC/Co-MOF.

Figure S5. EDX spectrum of CC/Co-MOF.



Figure S6. (a) and (c) CV curves of CC/CoNiMn-OH-2 and CC/Co-MOF, (b) and (d)

GCD curves of CC/CoNiMn-OH-2 and CC/Co-MOF



Figure S7. GCD curves of the samples at a current density of 1 $A \cdot g^{-1}$

Figure S8. CV and GCD curves of CC/CoMn-OH, CC/CoNi-OH and CC/CoNiMn-

OH.



Figure S9. CV and GCD curves of CC/CoNiMn-P-400, CC/CoNiMn-P-450 and CC/CoNiMn-P-550.

Figure S10. The Nyquist curve of CC/CoNiMn-OH (1, 2, 3) and CC/CoNiMn-P (400,

450, 500, 550).



Figure S11. The coulombic efficiency of CC/CoNiMn-P-500.



Figure S12. The SEM images of CC/CoNiMn-P-500 after 10,000 charge-discharge

cycles.