

Supplementary Information

Fig. S1. The optical photographs of these materials in this work.

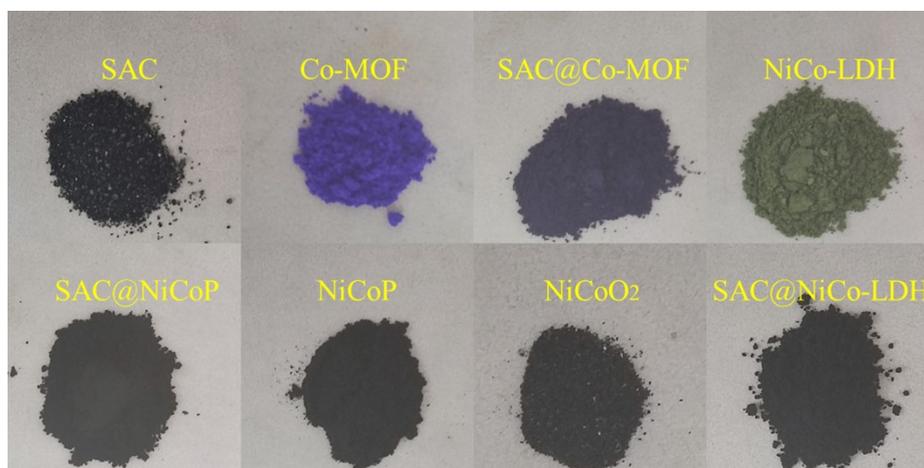


Fig. S2. The element contents of C, N, Ni, Co and P from EDS mapping.

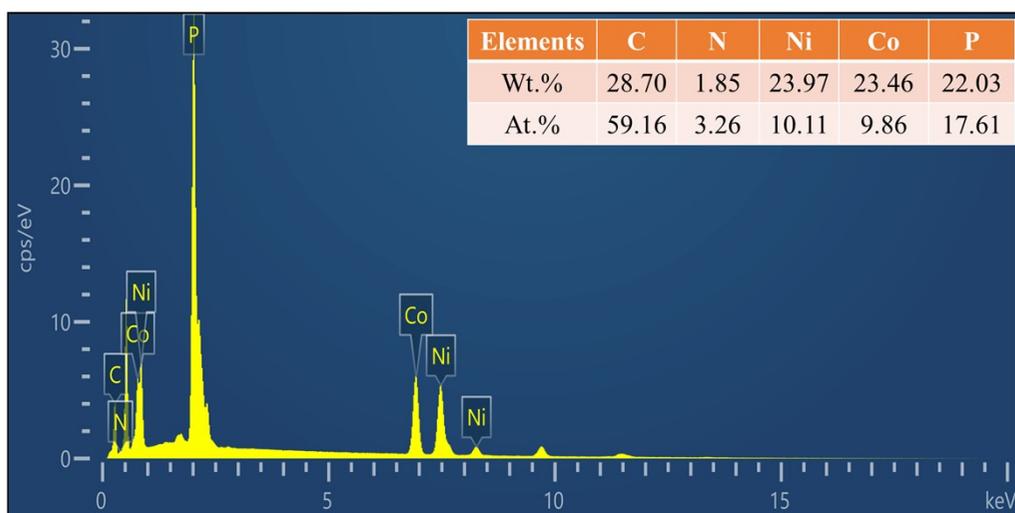


Fig. S3. (a) The CV and (b) GCD curves of AC.

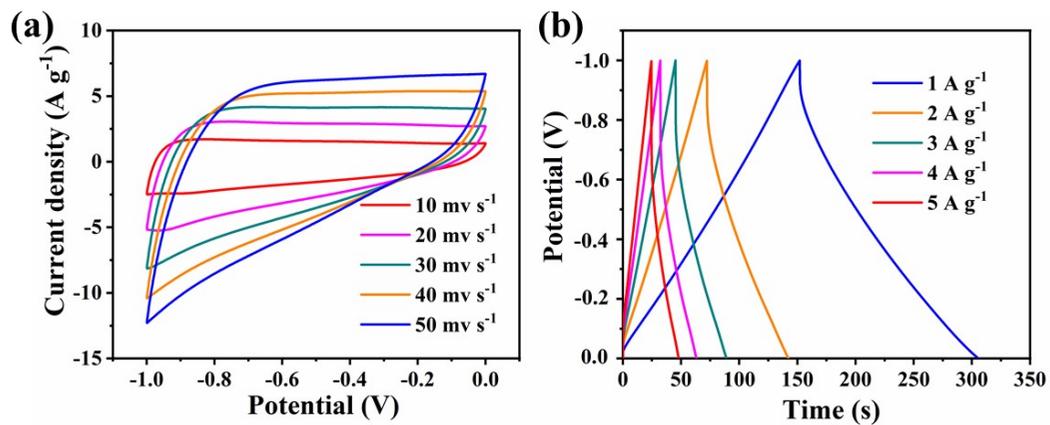


Table S1. The adsorption energy of OH⁻ and deprotonation energy of H⁻ from NiCo-LDH, NiCoO₂ and NiCoP.

| | NiCo-LDH | NiCoO ₂ | NiCoP |
|------------------|----------|--------------------|-------|
| Ad _{OH} | -1.48 | -0.59 | -0.43 |
| Dad _H | 1.75 | 3.19 | 0.68 |