

Hierarchical Ni-Mo-P nanoarrays toward efficient urea oxidation reaction

Jing Li^a, Feng Hu^a, Jinpei Hei^a, Guoan Liu^c, Hui Wei^{a*}, Nannan Wang^{a*}, Hehe Wei^{b*}

^aEngineering Technology Center of Department of Education of Anhui Province and College of Chemistry and Materials Engineering, Chaohu University, Hefei 238024, PR China.

^bKey Laboratory for Advanced Materials, Center for Computational Chemistry and Research Institute of Industrial Catalysis, East China University of Science and Technology, 130 Meilong Road, Shanghai 200237, China

^cHefei Ecriee-Tamura Electric Co., Ltd, Hefei 230088, P. R. China

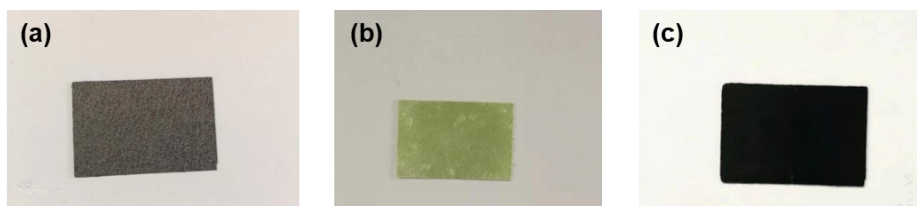


Figure S1. The pictures of (a) pure carbon papper; (b) the Ni-Mo precursdor grown on the carbon paper; (c) the Ni-Mo-P/CP sample.

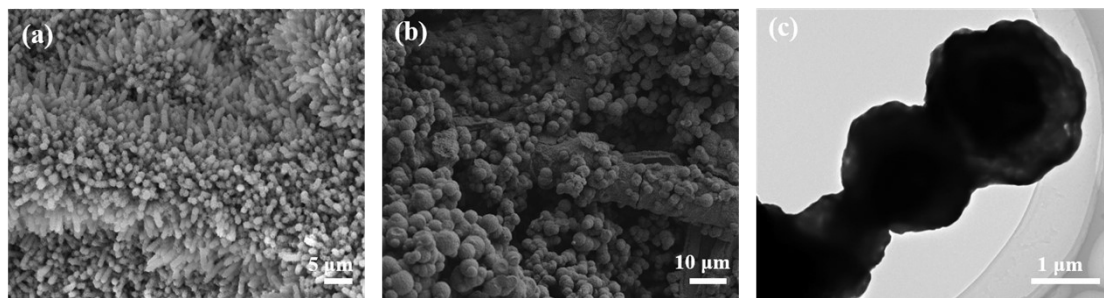


Figure S2. Low magnification SEM images of (a) Ni-Mo/CP and (b) Ni/CP precursor.

(c) The TEM image of Ni₂P/CP sample.

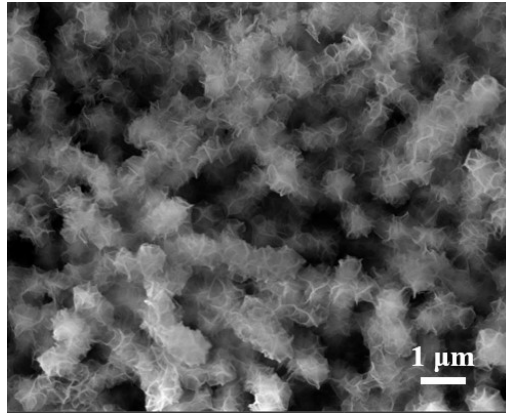


Figure S3. SEM image of Ni-Mo-O/CP.

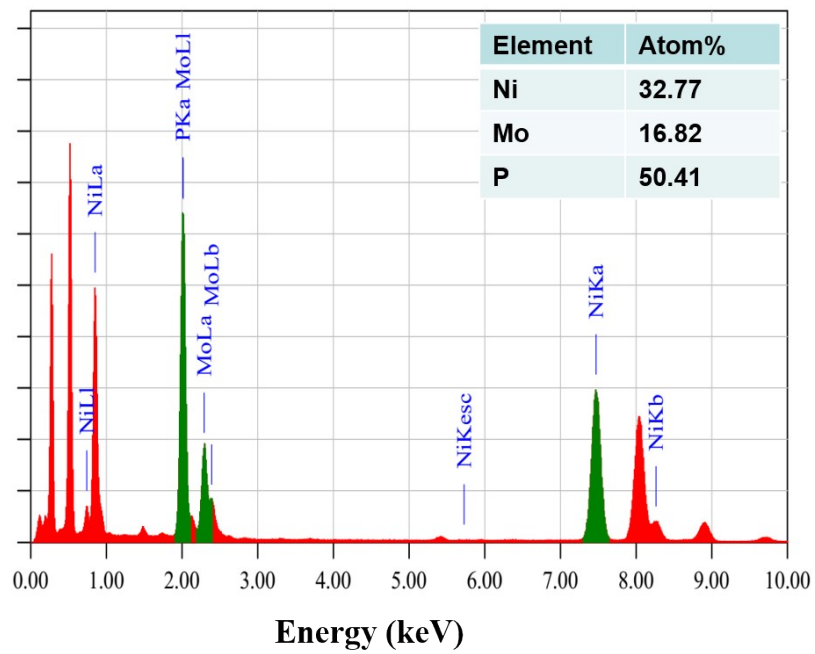


Figure S4. The EDX element spectrum of Ni-Mo-P/CP.

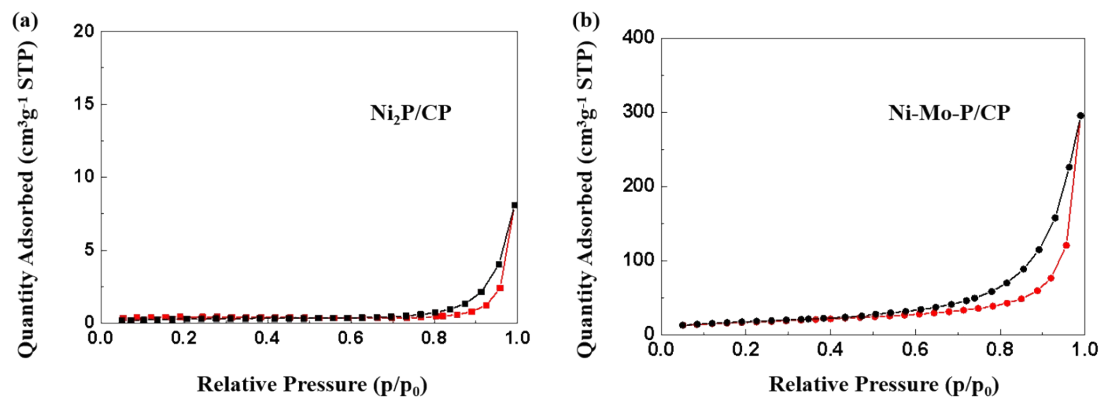


Figure S5. The N₂ adsorption and desorption isotherms of (a) Ni₂P/CP and (b) Ni-Mo-P/CP.

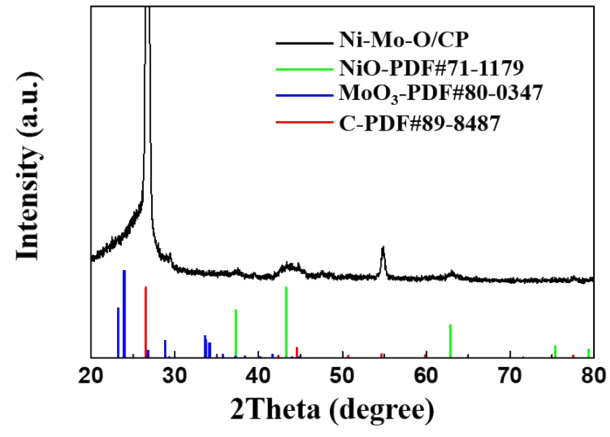


Figure S6. The XRD pattern of Ni-Mo-O/CP.

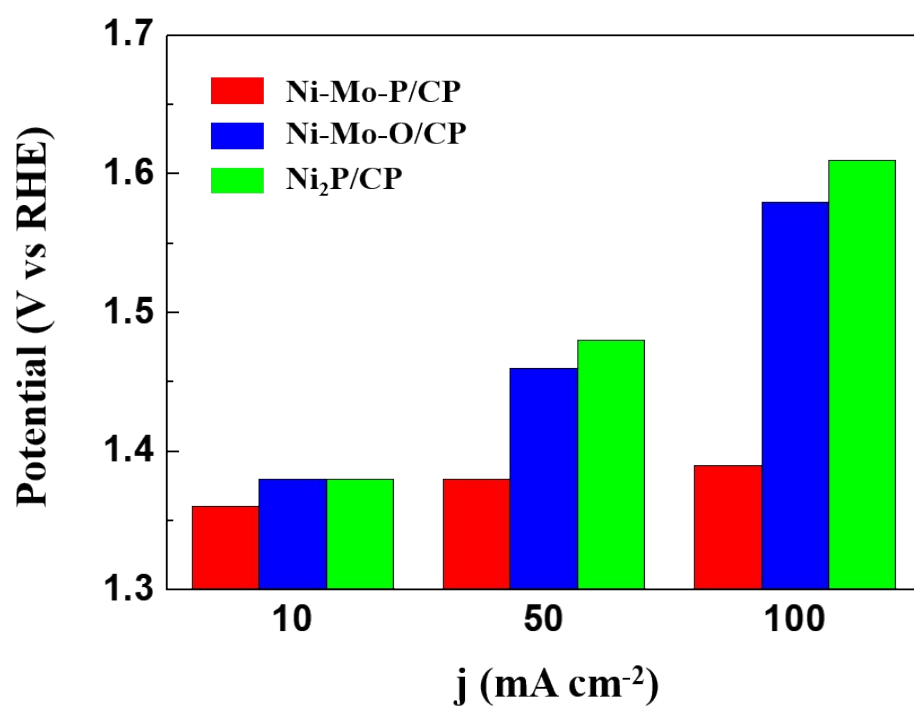


Figure S7. Comparison the potentials of various samples for UOR at different current densities.

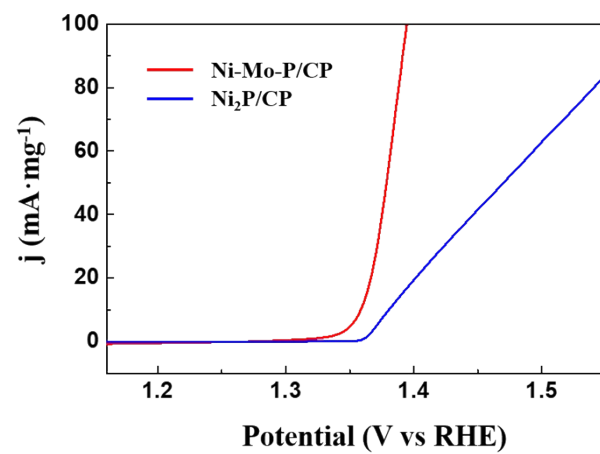


Figure S8. LSV curves of Ni-Mo-P/CP and Ni₂P/CP for UOR.

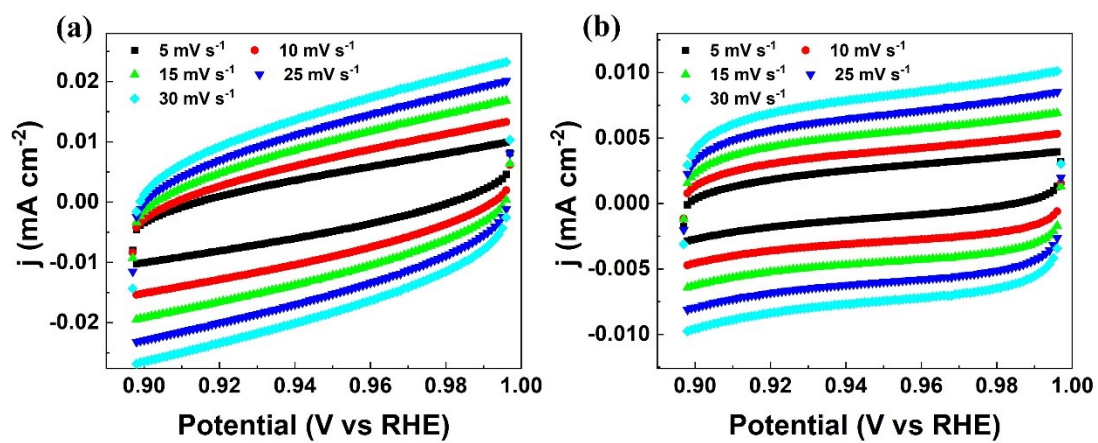


Figure S9. CV curves collected at various scan rates of (a) Ni-Mo-P/CP; (b) Ni₂P/CP.

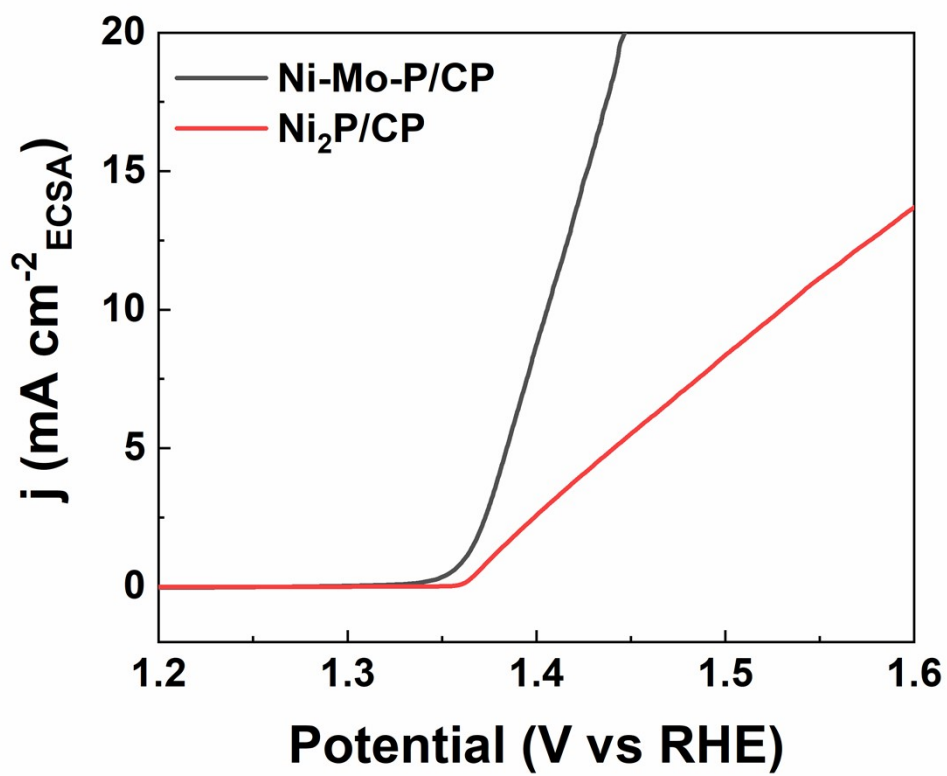


Figure S10. UOR activity of Ni-Mo-P/CP and Ni₂P/CP when the current density normalized by ECSA.

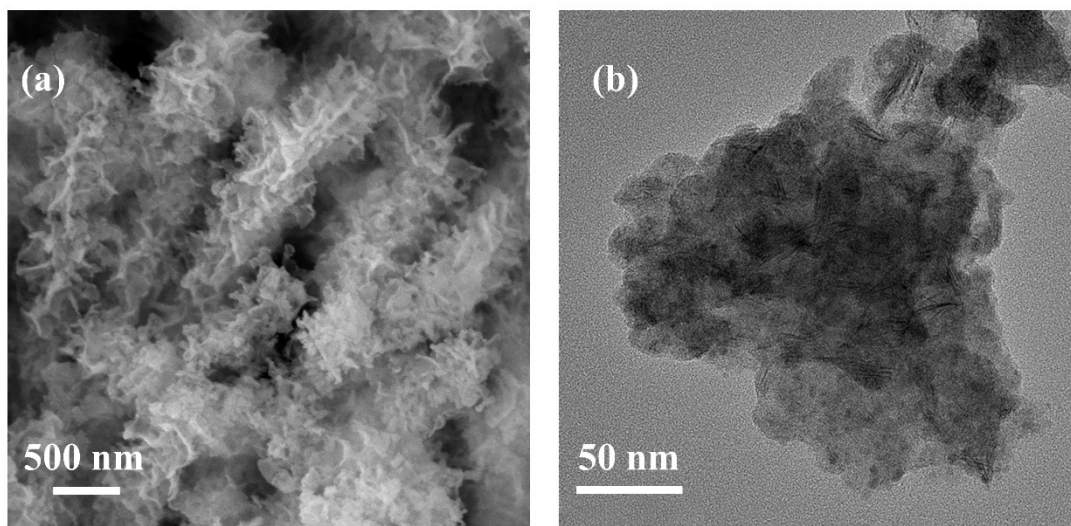


Figure S11. (a) SEM and (b) TEM images of Ni-Mo-P/CP after stability test in urea electrolysis.

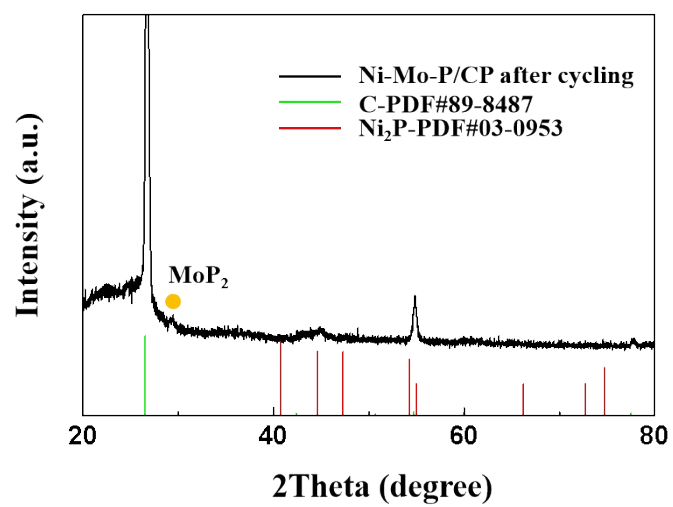


Figure S12. The XRD pattern of the Ni-Mo-P/CP after urea electrolysis.

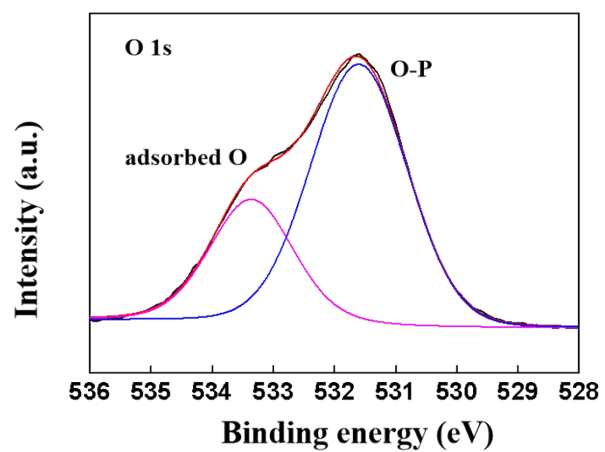


Figure S13. The high resolution XPS spectrum of O 1s in initial Ni-Mo-P/CP system.

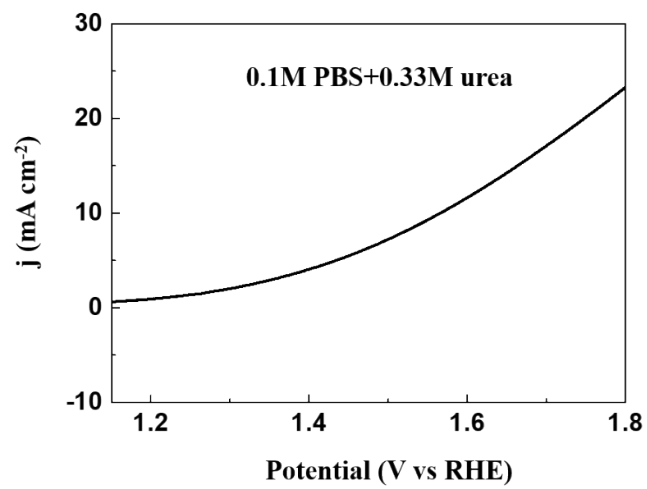


Figure S14. LSV curves of Ni-Mo-P/CP in 0.1 M PBS solution with 0.33 M urea for UOR.