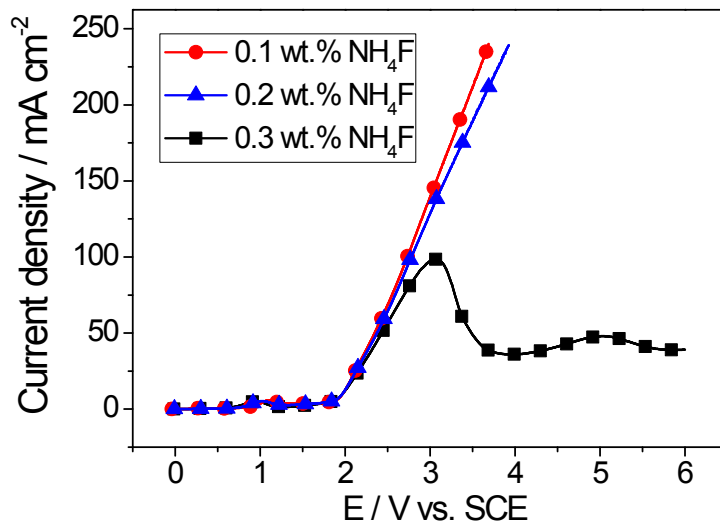


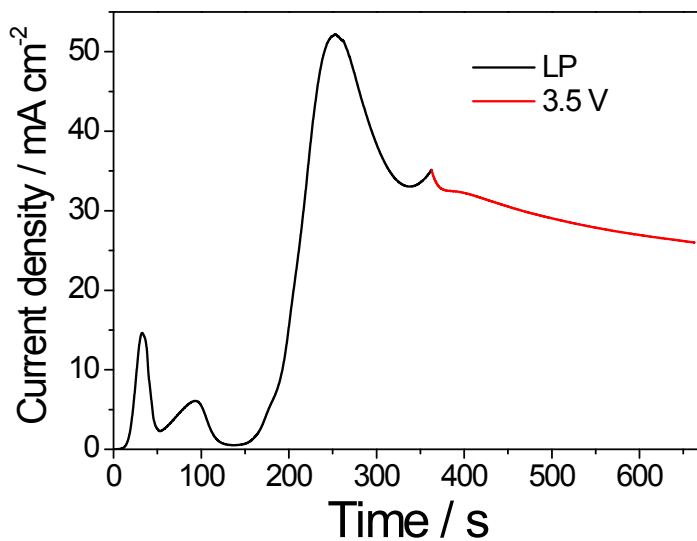
## Electronic Supplementary Information

### **Facile Synthesis of Mechanically Robust and Highly Porous NiO Film with Excellent Electrocatalytic Activity towards Methanol Oxidation**

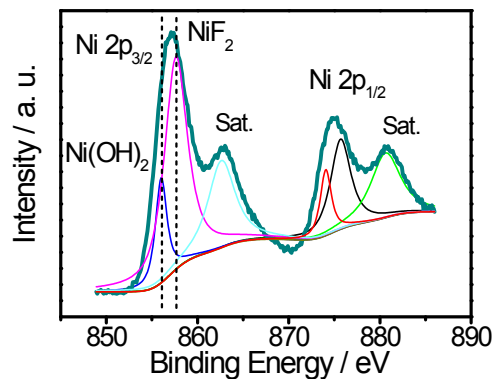
*Luoyuan Wang, Guoge Zhang\*, Yan Liu, Wenfang Li, Wei Lu and Haitao Huang\**



**Fig. S1** Linear polarization (LP) curves of nickel in the solutions with 80 wt.%  $\text{H}_3\text{PO}_4$  and different  $\text{NH}_4\text{F}$  concentration.

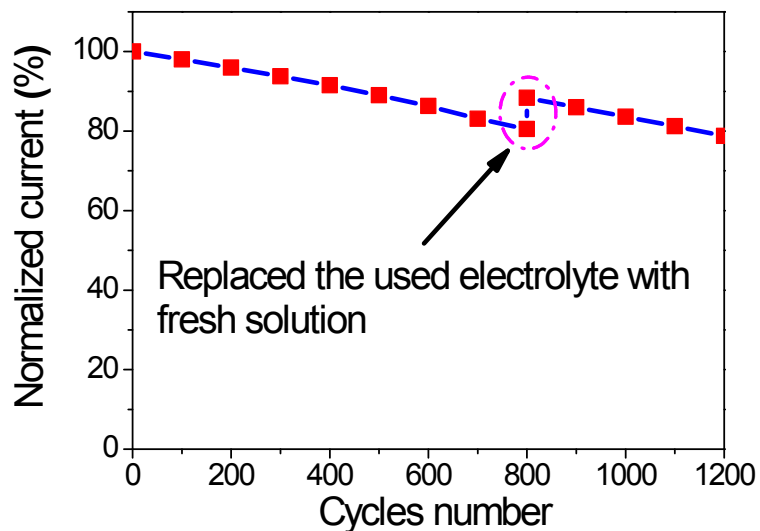


**Fig. S2** The output current of nickel anodized in 0.5 wt.%  $\text{NH}_4\text{F}$  + 85 wt.%  $\text{H}_3\text{PO}_4$ . The anodization potential was swept from open circuit potential to 3.5 V at  $10 \text{ mV s}^{-1}$ , and then kept constant at 3.5 V for 5 min.

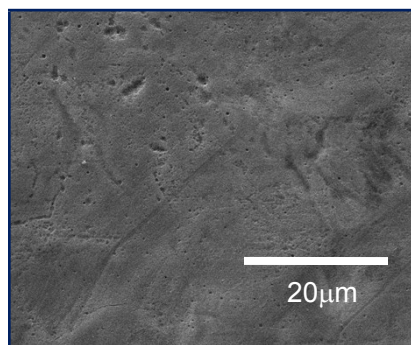


**Fig. S3** XPS Ni 2p spectra of the sample after annealing.

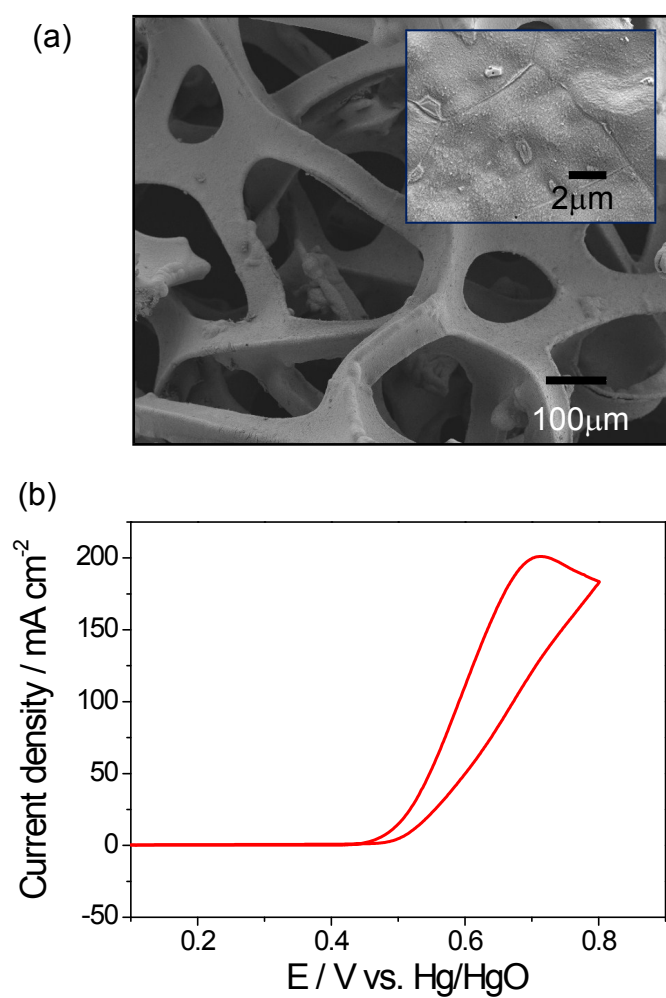
Two Ni  $2p_{3/2}$  peaks were observed at 855.9 and 857.7 eV, corresponding to those of Ni(OH)<sub>2</sub> and NiF<sub>2</sub>,<sup>1</sup> respectively.



**Fig. S4** Cycling test of anodic NiO in 0.1 M NaOH + 1 M CH<sub>3</sub>OH at 50 mV s<sup>-1</sup>



**Fig. S5** SEM image of anodic NiO before the cycling test.



**Fig. S6** (a) SEM image and (b) Cyclic voltammetry curve of anodic NiO film produced conformally on the nickel foam. Electrolyte: 0.1 M NaOH with 1 M CH<sub>3</sub>OH, scan rate: 50 mV s<sup>-1</sup>.

1. M. C. Biesinger, L. W. M. Lau, A. R. Gerson and R. S. C. Smart, *Phys. Chem. Chem. Phys.*, 2012, **14**, 2434-2442.