Electronic Supplementary Material (ESI) for RSC Advances.

Mesoporous NiO nanosphere: a sensitive strain sensor for determination of hydrogen peroxide

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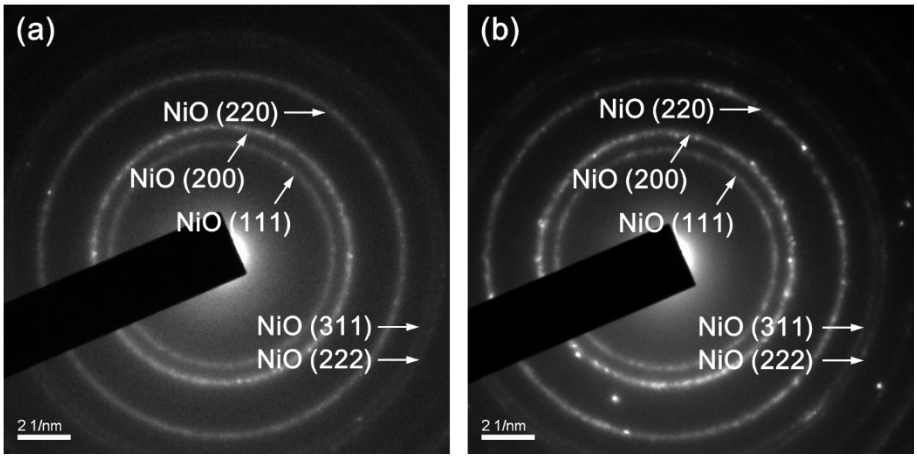

Fig. S1 SAED patterns of a) NiO-MNS and b) NiO-NS.

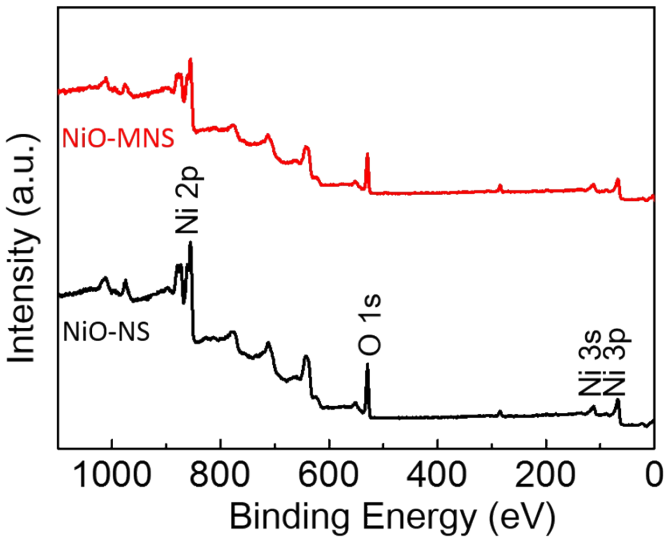

Fig. S2 XPS survey spectra of the NiO-MNS and NiO-NS samples.

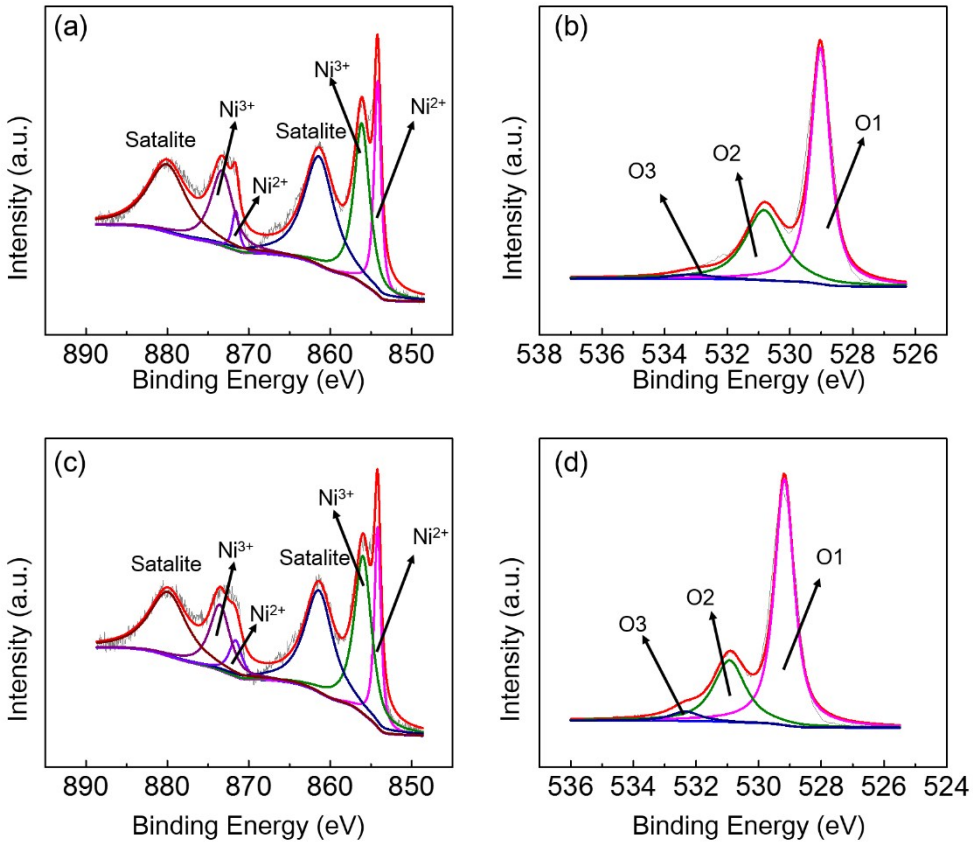

Fig. S3 High-resolution XPS spectra of Ni 2*p* and O 1*s* for NiO-MNS (a, b) and NiO-NS (c, d), respectively.

Table S1 The Ni- and O-content of NiO-MNS and NiO-NS. The capacitance of three Ni moieties and three O moieties of the above two samples.

Sample	Surface chemistry (XPS)		
	Ni (at %)	O (at %)	
NiO-MNS	43.1	56.9	
NiO-NS	43.6	56.4	
Sample	Functionality (at % of total Ni 2*p*)		
	Ni (II)	Ni (II)	Satellite
NiO-MNS	26.6	43.1	30.2
NiO-NS	16.1	36.5	47.4
Sample	Functionality (% of total O 1*s*)		
	O1	O2	O3
NiO-MNS	62.0	35.6	2.4
NiO-NS	68.3	27.8	3.9

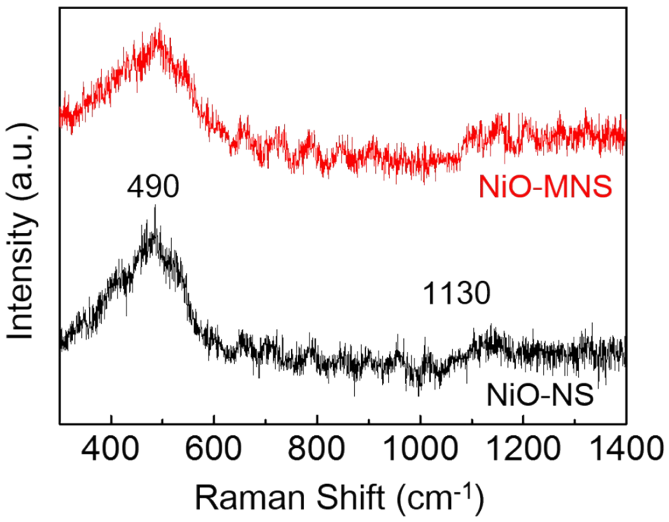

Fig. S4 Raman spectra of the NiO-MNS and NiO-NS samples.

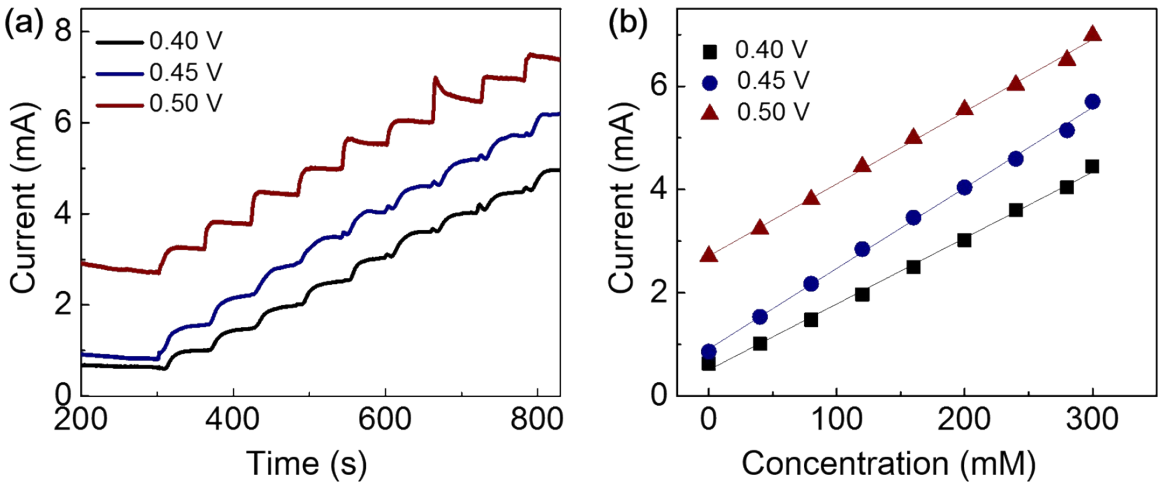

Fig. S5 a) Chronoamperometric response of NiO-NS towards the step injection of 40 μM H_2O_2 solution at different potentials. b) Linear relationship between the response current and the H_2O_2 concentration.

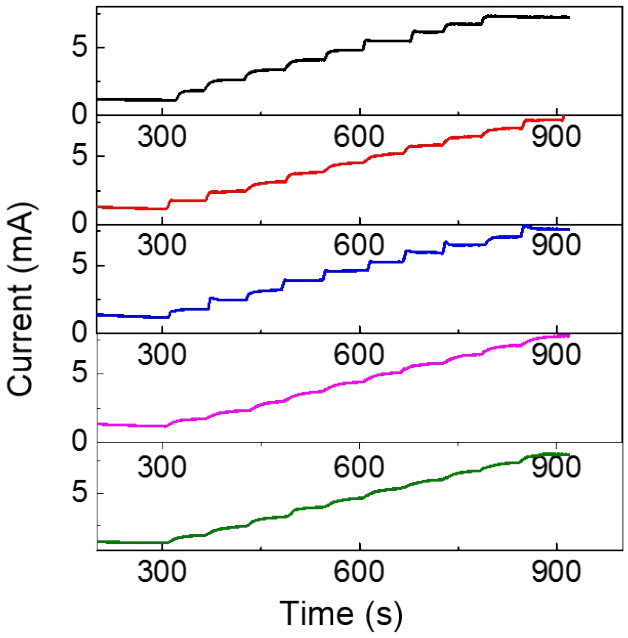

Fig. S6 Chronoamperometric response of five parallel NiO-MNS sensors towards the injection of hydrogen peroxide at 0.45 V.

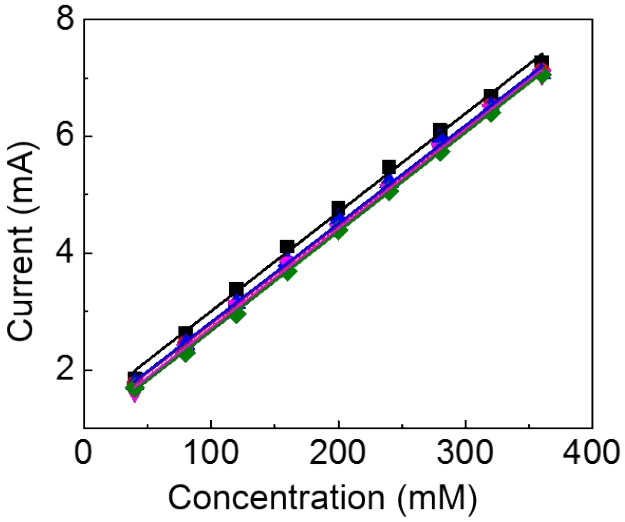

Fig. S7 Linear relationship between the response current of five parallel sensors and the H_2O_2 concentration.