

Electronic Supplementary Information

A simple approach to strontium sodium tantalite mesocrystals with ultra-high photocatalytic properties for water splitting

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Table S1 Lattice parameters of the as prepared SNT samples

SNT samples	Lattice parameters		
	<i>a</i> /nm	<i>b</i> /nm	<i>c</i> /nm
Sr = 0.005	0.5515	0.7753	0.5498
Sr = 0.01	0.5517	0.7758	0.5503
Sr = 0.02	0.5521	0.7766	0.5507
Sr = 0.03	0.5526	0.7775	0.5513
Sr = 0.04	0.5531	0.7783	0.5520
JCPDS #25-0863	0.5513	0.7750	0.5494

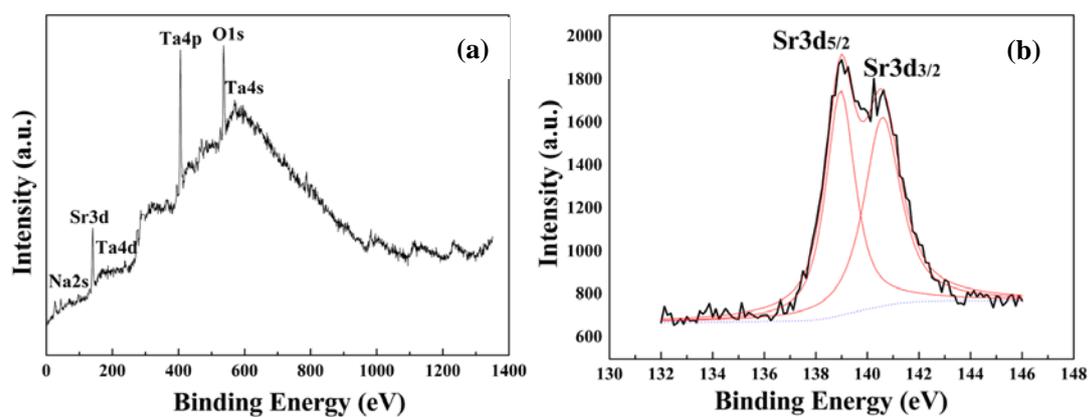


Figure S1 XPS data from the surface of the sample: a) the whole-range spectrum; b) Sr 3d core-level spectrum.

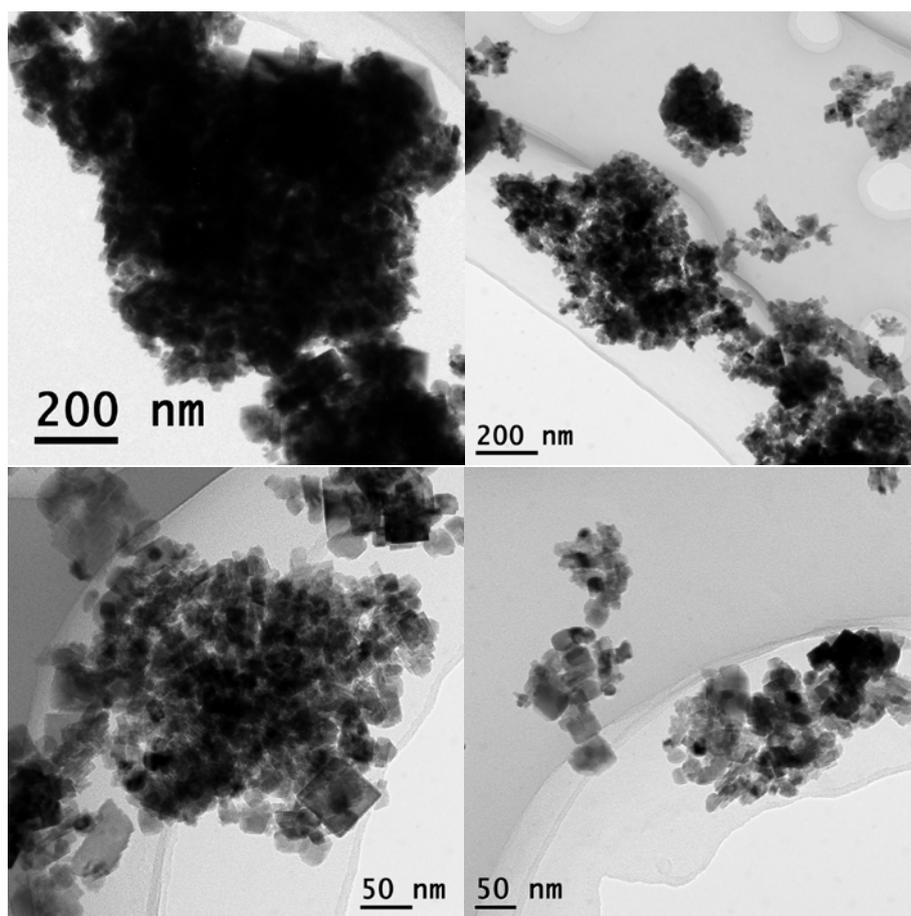


Figure S2 TEM image of SNT at 30 min.

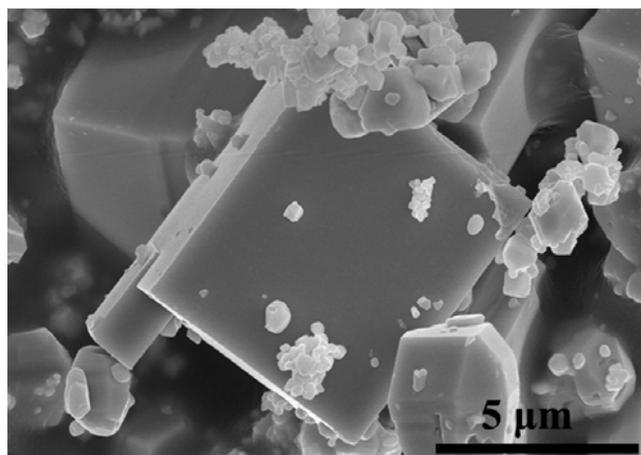


Figure S3. SEM images of NaTaO₃ synthesized in molten salt.

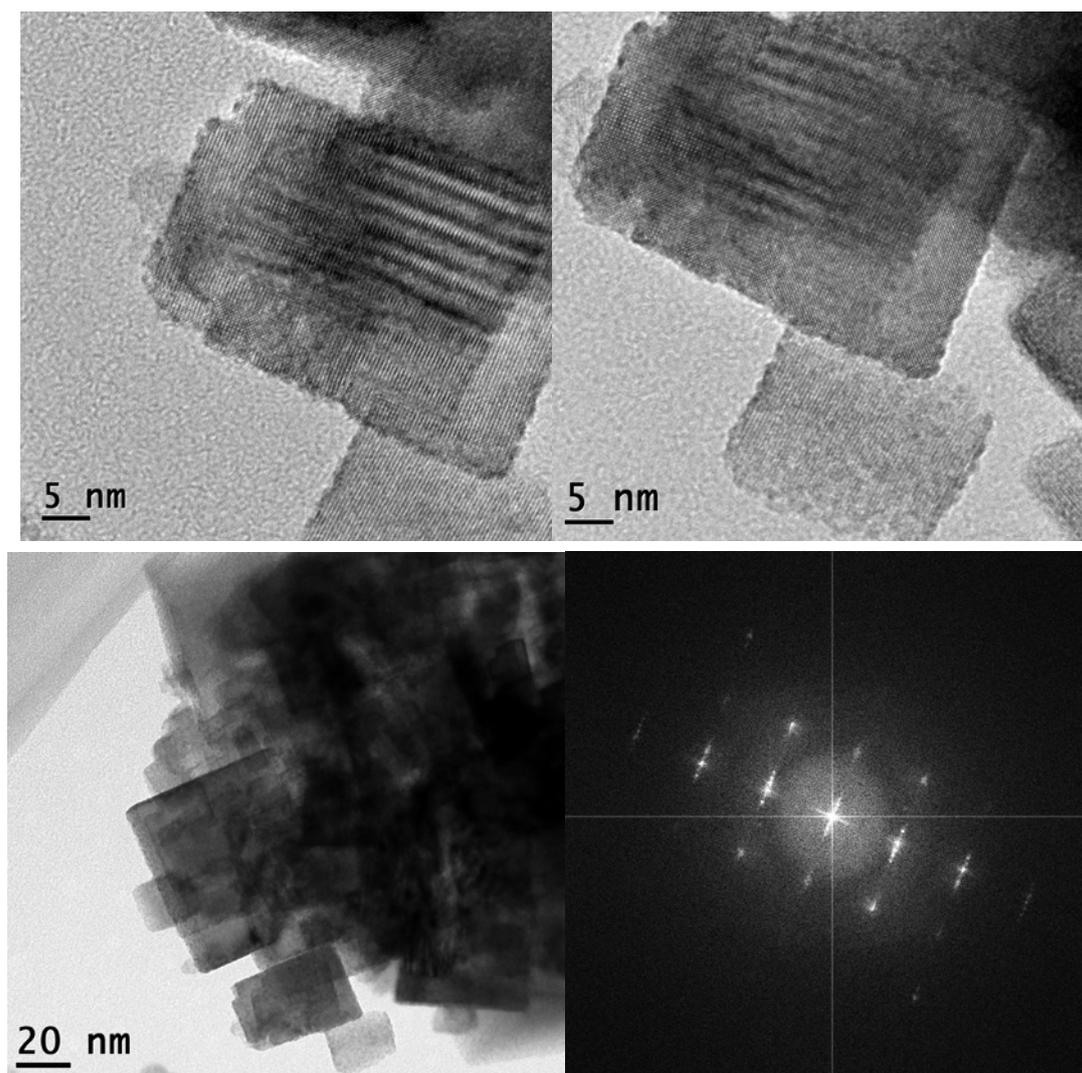


Figure S4 Detail TEM ,HRTEM and reduced FFT images of SNT obtained at $W=2:1$

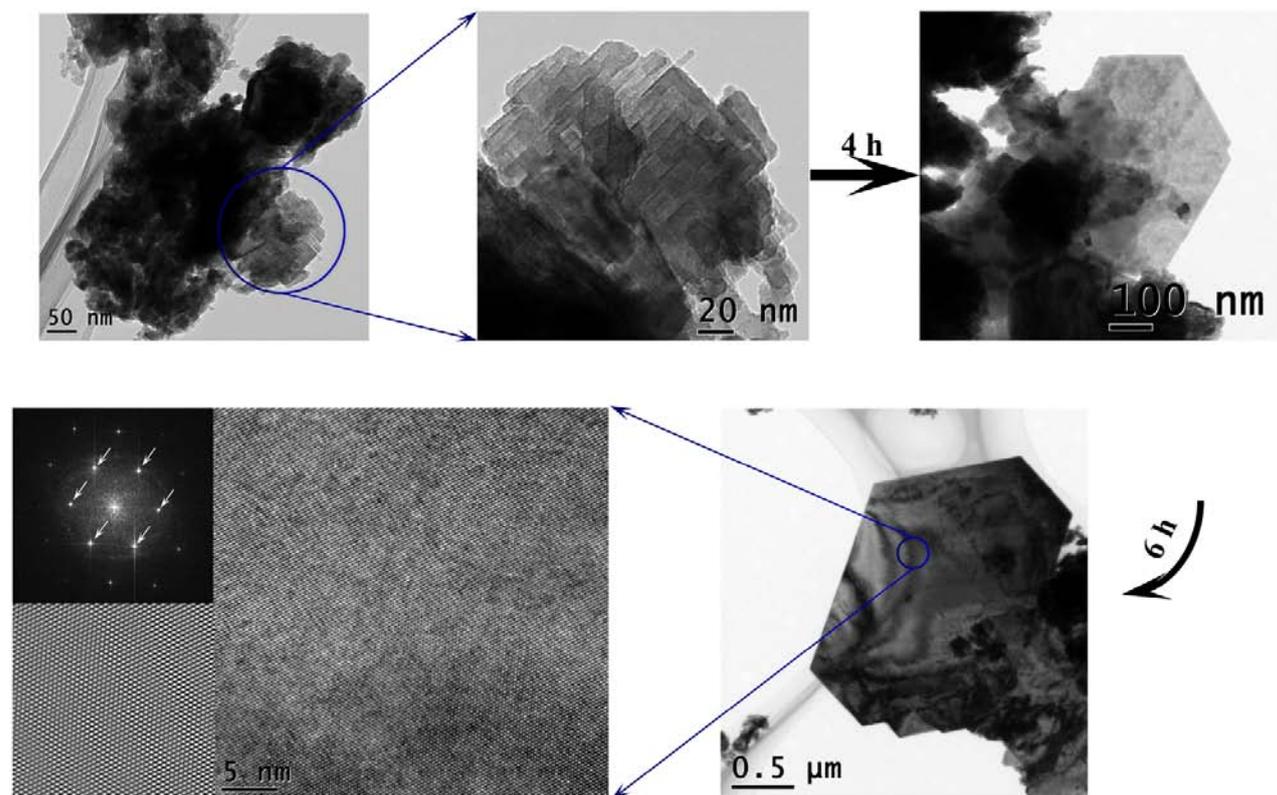


Figure S5 Structure changing of SNT at a prolonged reaction time to 6 h.

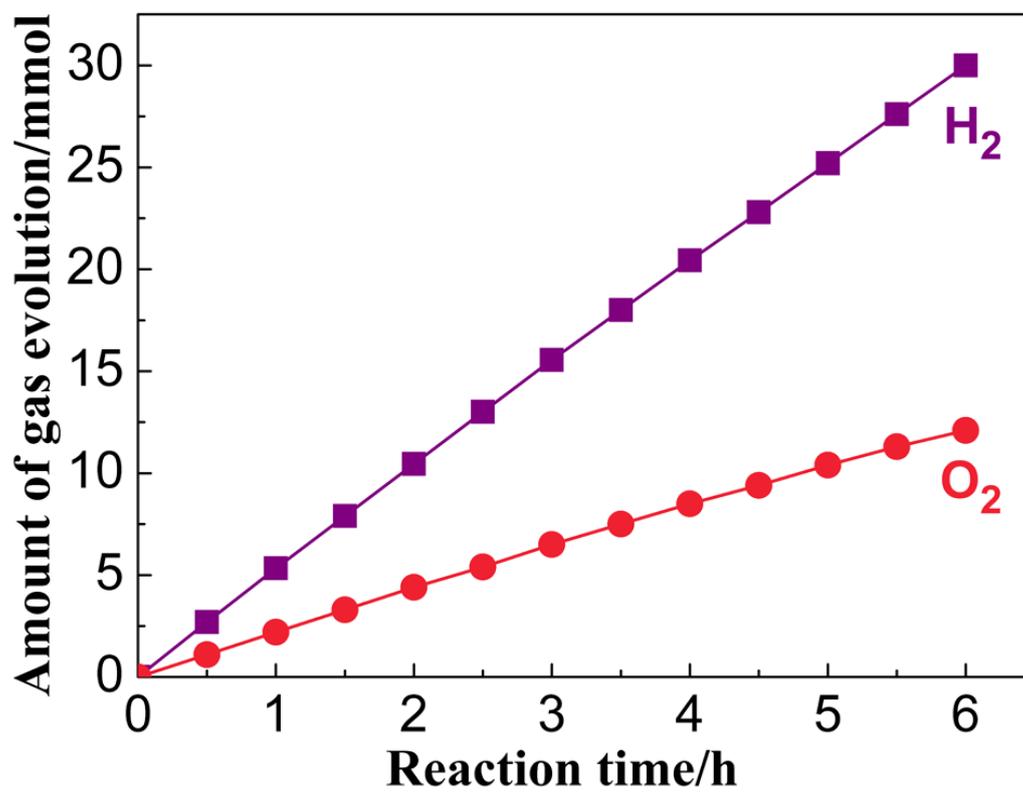


Figure S6 Amount of gas evolution according to reaction time for SNT-NiO powders.

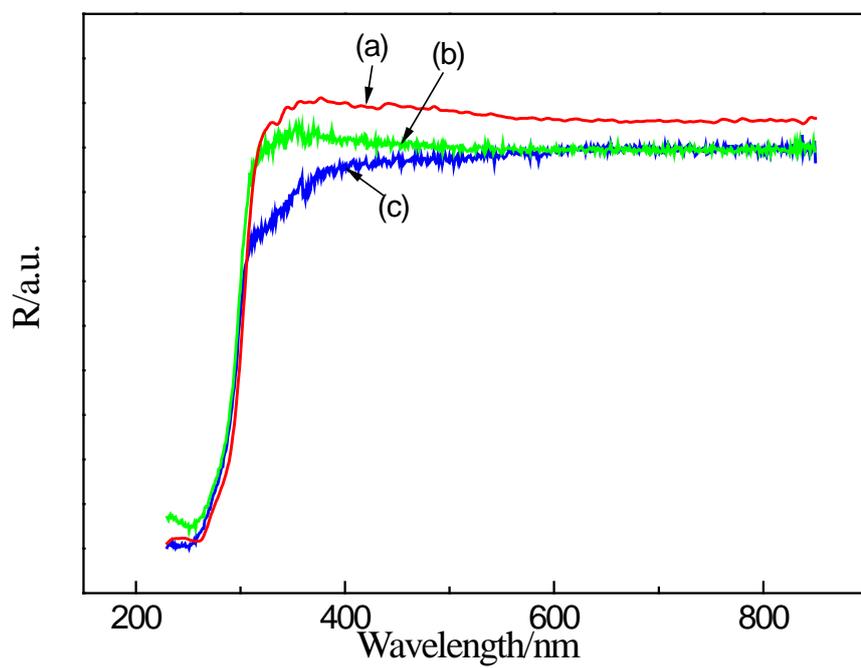


Figure S7 UV-vis spectra of SNT mesocrystals at different amount of Sr: (a) Sr=0, (b) Sr=0.01 and (c) Sr=0.02