Supporting Information

A Robust Single Compartment Peroxide Fuel Cell Using Mesoporous Antimony Doped Tin Oxide as Cathode Material

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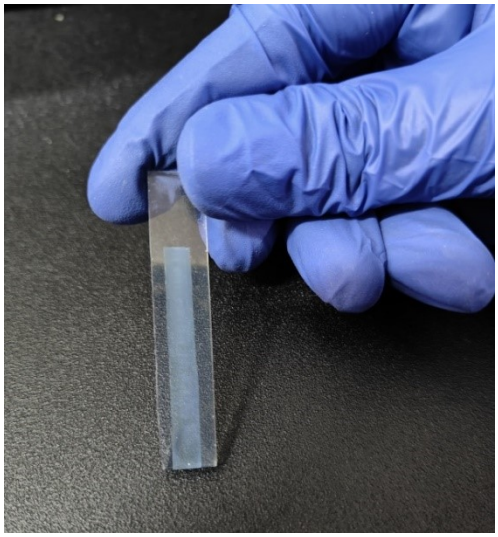

Figure S1. Image of the ATO film coated FTO electrode after calcination at 500°C

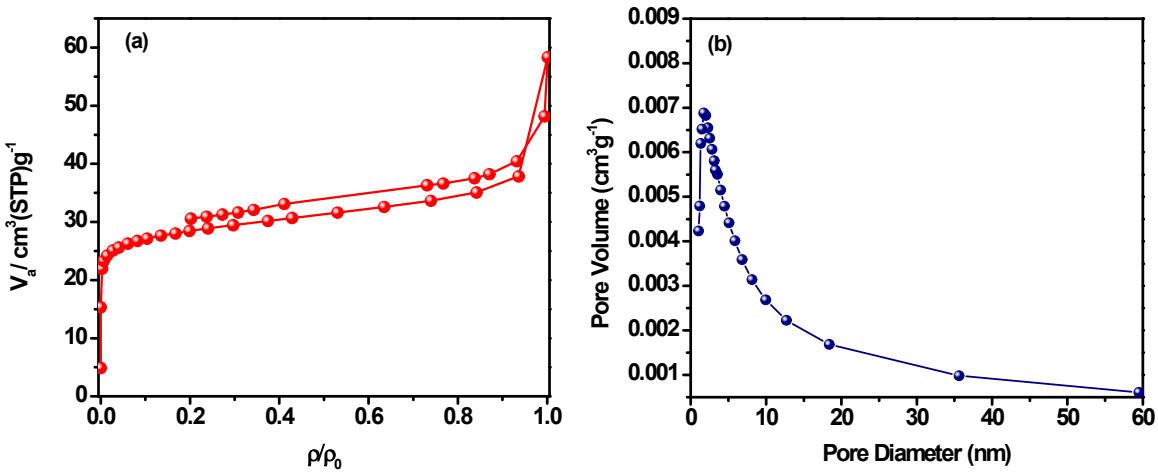

Figure S2. N_2 adsorption–desorption isotherm **(a)** and BJH plot pore size distribution **(b)** for the prepared ATO nanopowder

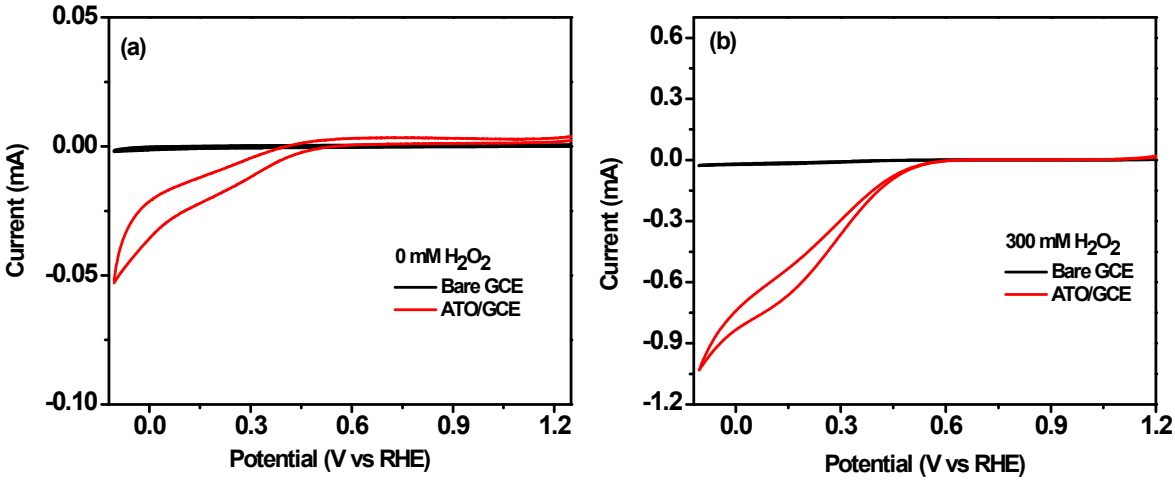

Figure S3. CV of ATO/GCE and bare GCE (**a**) without H_2O_2 and (**b**) with 300 mM H_2O_2, in 0.05 M H_2SO_4 solution at a scan rate of 10 mV/s using Ag/AgCl and platinum wire as reference and counter electrodes, respectively.

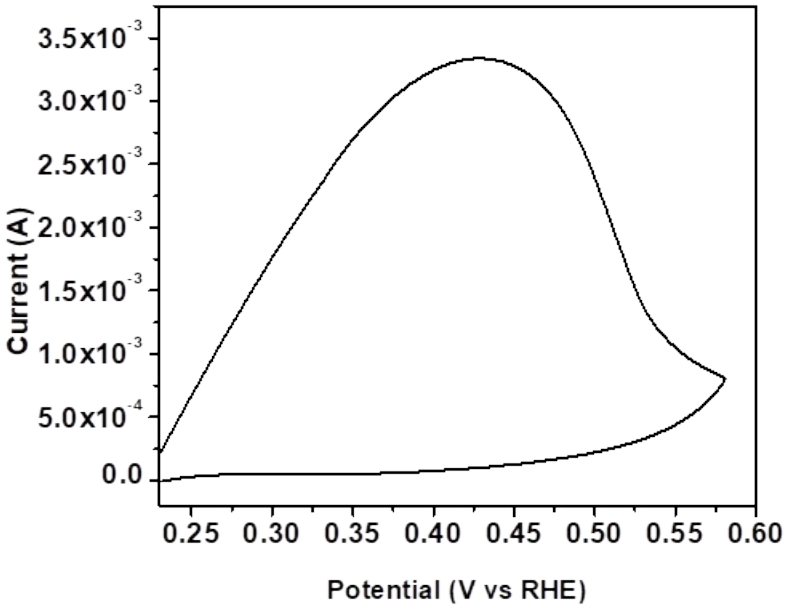

Figure S4. Cyclic voltammogram of Ni foam (0.8 × 0.9 cm^2) with 300 mM H_2O_2, in 0.05 M H_2SO_4 at a scan rate of 10 mV/s with an Ag/AgCl and platinum wire as reference and counter electrodes respectively

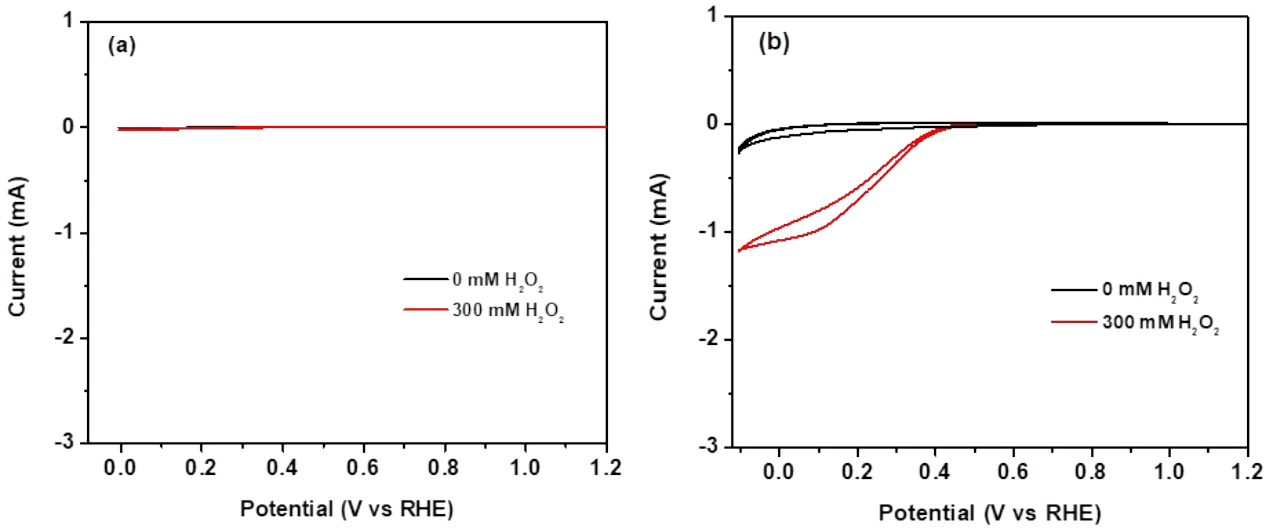

Figure S5. CV of (**a**) bare FTO and (**b**) SnO_2/FTO with and without addition of H_2O_2 in 0.05 M H_2SO_4 at a scan rate of 10 mV/s with an Ag/AgCl and platinum wire as reference and counter electrodes respectively

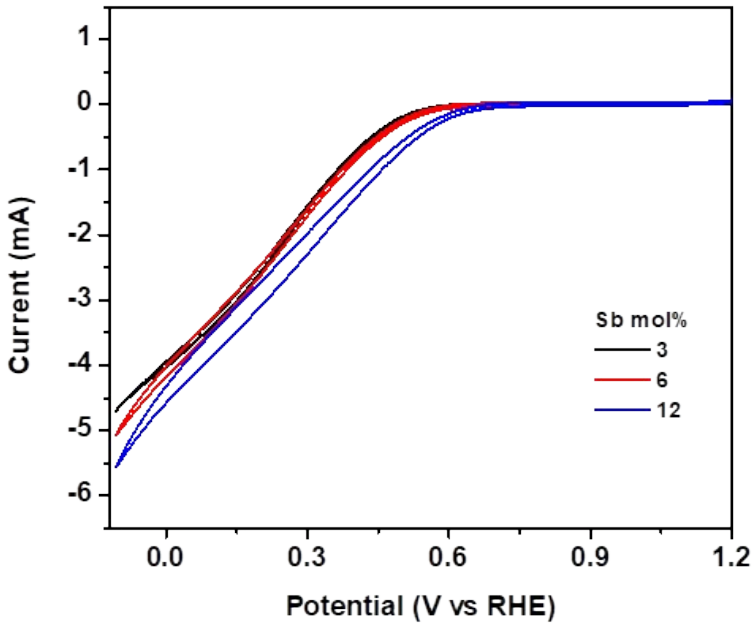

Figure S6. CV of three different (mol%) Sb doped SnO_2 coated FTO electrodes with 300 mM H_2O_2, from 0.05 M H_2SO_4 at a scan rate of 10 mV/s with an Ag/AgCl and platinum wire as reference and counter electrodes respectively.

Table S1. Comparison table of electrochemical single compartment peroxide fuel cell (acidic) parameters for recently reported cathodic catalysts and the current catalytic system (ATO)

Reference. No.	Cathode	Anode	Electrolyte	OCV (V)	Power Density ($\mu W/cm^2$)
1	Prussian Blue	Nickel mesh	0.1 M HCl	0.6	1500
2	$Fe_3[\{Co^{III}(CN)_6\}_2]$	Nickel mesh	$HClO_4$ pH 3	0.78	1200
3	$Fe[M^C(CN)_4]$	Nickel mesh	$HClO_4$ pH 1	0.75	4500
4	Fe^{III} $(PLY)_3$	Nickel foam	0.1 M $HClO_4$	0.74	1600
5	PEDOT:PSS	Nickel mesh	0.05 M HCl	0.56	310
6	CNT/hemin	CNT/VitB12	pH 7.4 buffer	0.23	23.8
	ATO	Nickel Foam	0.05 M H_2SO_4	0.82	320

References:

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