

Supporting Information

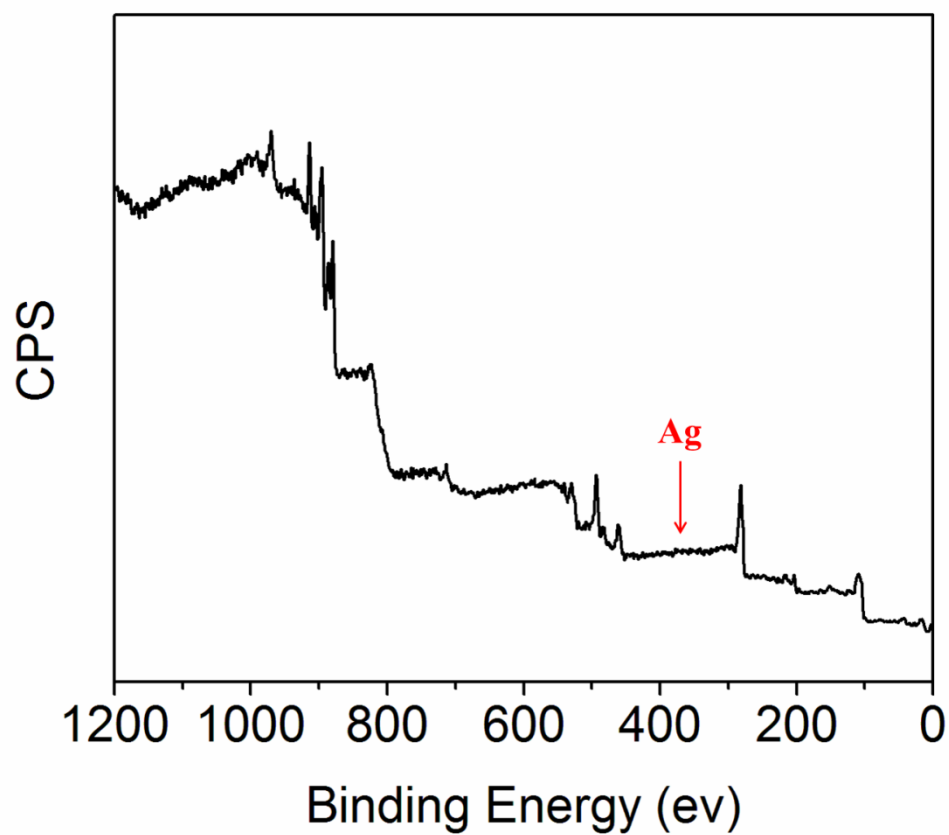


Figure S1. XPS survey scan of the defective RuO₂ supported CeO₂ catalyst. The XPS signals of Ag 3d should appear at a binding energy of around 370 eV, and there is no peak in the survey scan thus confirms the absence of Ag in the catalyst.

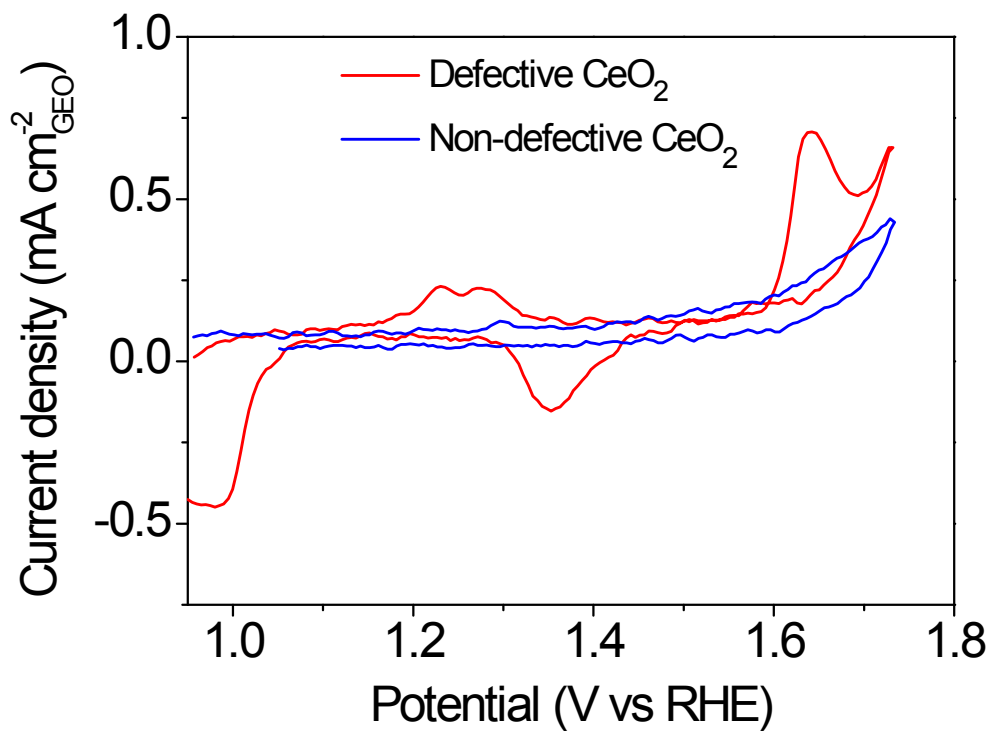


Figure S2. Cyclic voltammograms (CV) measurement results of the defective and non-defective CeO₂. The OER activity is very low for both CeO₂ oxides.

Table S1 Structural parameters of RuO₂-CeO₂ composite obtained from Rietveld refinement

Phase 1: CeO₂

Spacegroup: Fm-3m

Lattice parameters

a=b=c=5.4159975 Å

h	k	l	d _{space}	2θ	Intensity
1	1	1	3.12693	28.52248	1.16
0	0	2	2.70800	33.05229	0.492
0	2	2	1.91484	47.44122	2.68
3	1	1	1.63298	56.29093	3.41
2	2	2	1.56346	59.03466	0.722
0	0	4	1.35400	69.34791	1.24
3	3	1	1.24252	76.62506	2.89
0	4	2	1.21105	78.99669	1.94
4	2	2	1.10554	88.33596	3.44

Phase 2: RuO₂

Spacegroup: P₄₂/mnm

Lattice parameters

a=b=4.5117244 Å

c=3.1030311 Å

h	k	l	d _{space}	2θ	Intensity
1	1	0	3.19027	27.94453	0.886
0	1	1	2.55670	35.06966	1.9
0	2	0	2.25586	39.93231	0.589
1	1	1	2.22438	40.52214	0.259
2	1	0	2.01770	44.88666	0.0674
2	1	1	1.69155	54.17882	5.42
2	2	0	1.59514	57.75054	1.49
0	0	2	1.55152	59.53492	1.02
3	1	0	1.42673	65.35415	1.39
2	2	1	1.41867	65.77255	0.408
1	1	2	1.39526	67.01968	2.36
0	3	1	1.35334	69.38659	1.41
3	1	1	1.29628	72.91671	0.252
0	2	2	1.27835	74.10850	1.35
3	2	0	1.25133	75.98885	0.278
2	1	2	1.22993	77.55412	0.364

3	2	1	1.16052	83.17345	3.05
0	4	0	1.12793	86.14606	0.863
2	2	2	1.11219	87.67201	2.02
4	1	0	1.09425	89.48926	0.192