

Supporting Information

Au Nanoparticle anchored Stannatranone-pillared MOF as duo-active electrocatalyst for Overall Water Splitting

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Fig. S1 Left: Photograph of three-electrode electrochemical cell for overall water splitting; Right: Enlarged view of cell showing bubbling of gases

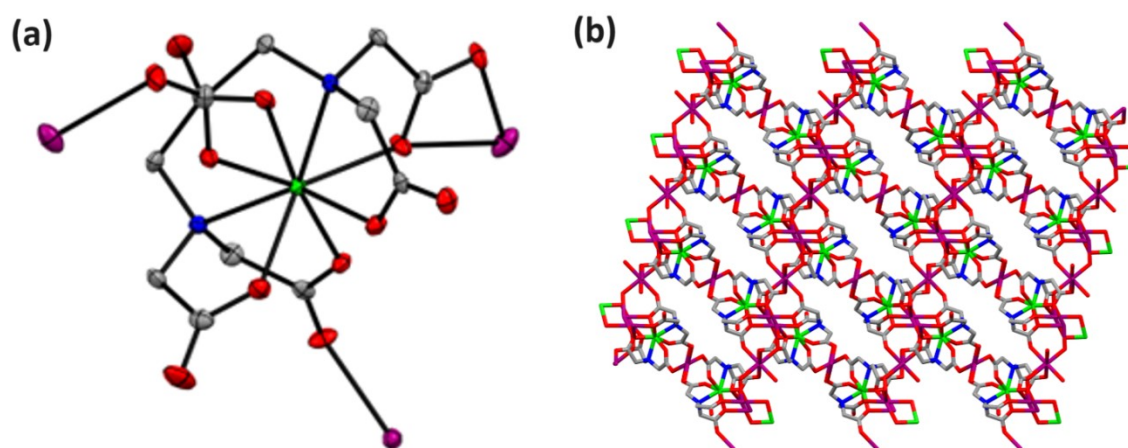


Fig. S2 (a) Asymmetric unit of Sn-Na MOF, (b) 2D coordination array in Sn-Na MOF.

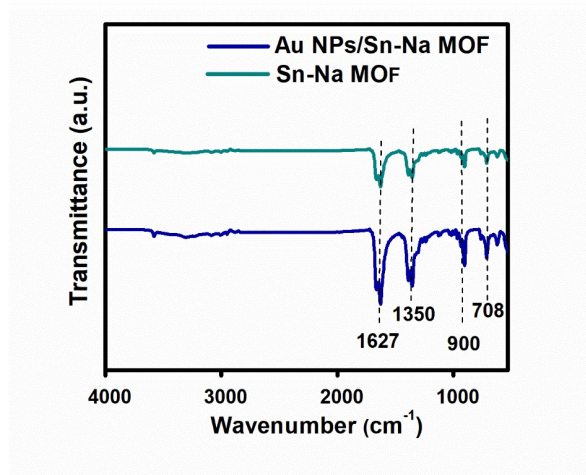


Fig. S3 FTIR spectra of Sn-Na MOF and Au NPs/Sn-Na MOF

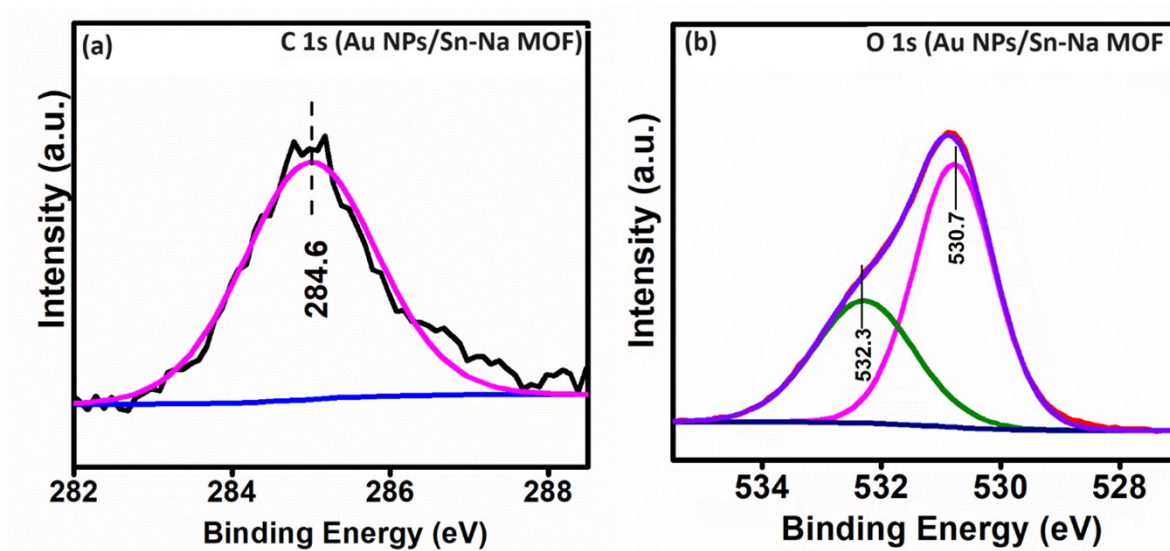


Fig. S4 XPS spectra of (a) C 1s (Au NPs/Sn-Na MOF), (b) O 1s of (Au NPs/Sn-Na MOF)

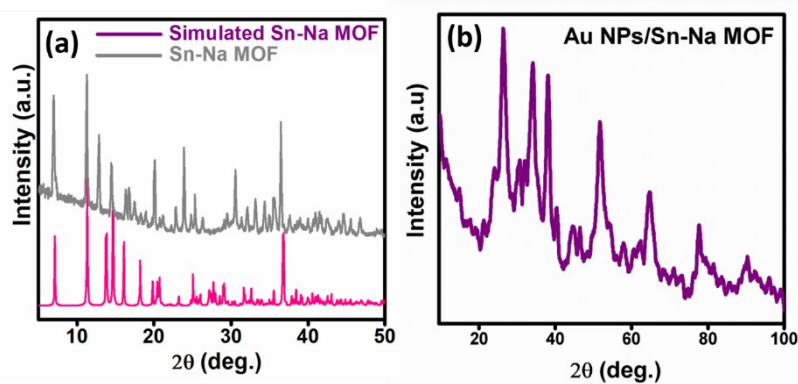


Fig. S5 PXRD patterns of (a) Simulated Sn-Na MOF and Sn-Na MOF, (b) Au Nps/Sn-Na MOF.

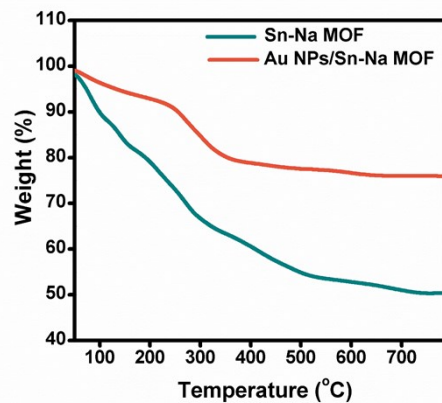


Fig. S6 TGA analysis of Sn-Na MOF and Au Nps/Sn-Na MOF

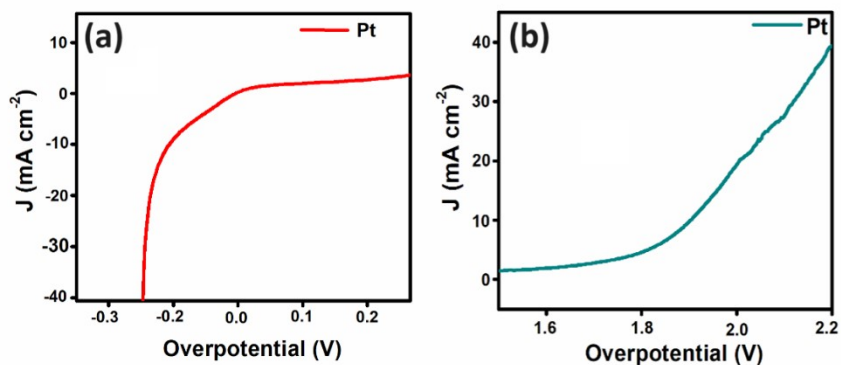


Fig. S7 LSV polarization curves of Pt as working electrode (a) HER Performance, (b) OER Performance

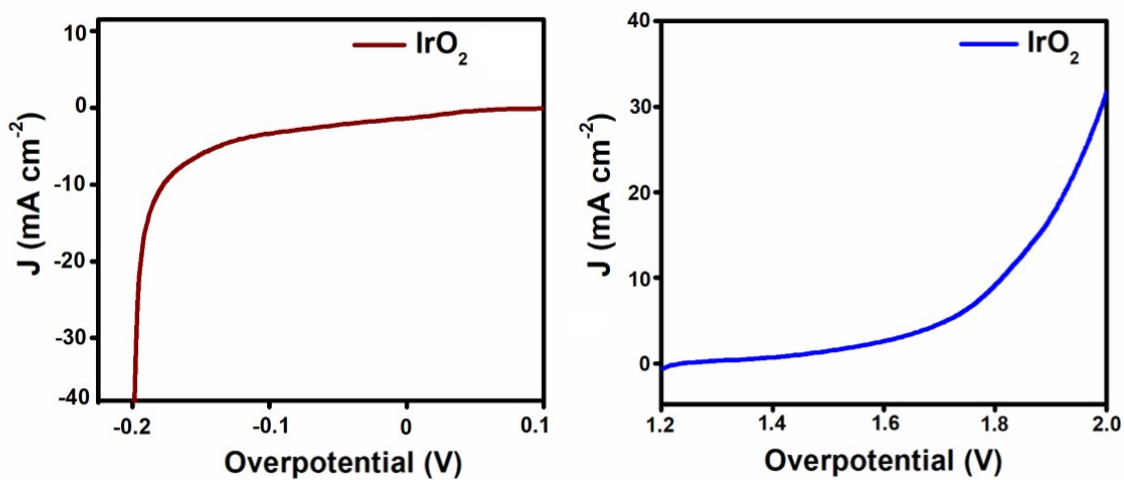


Fig. S8 LSV polarization curves of IrO₂ as working electrode (a) HER Performance, (b) OER Performance

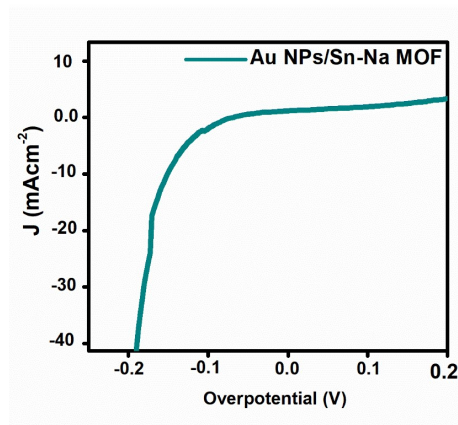


Fig. S9 LSV polarization curves HER performance of Au NPs/Sn-Na MOF in 1 M KOH using graphite carbon counter electrode

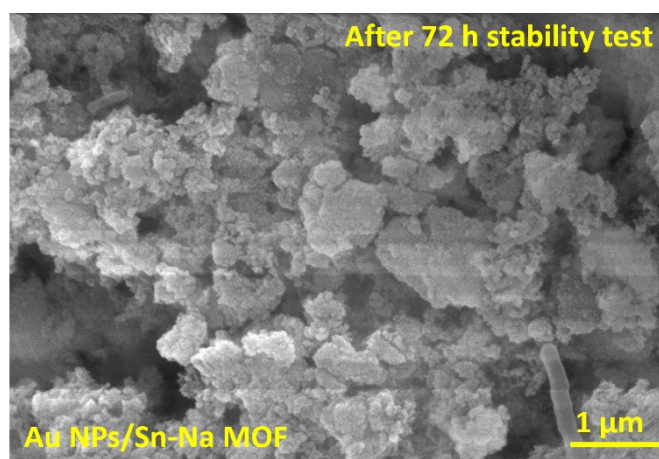


Fig. S10 FESEM image of Au NPs/Sn-Na MOF after 72 h stability test

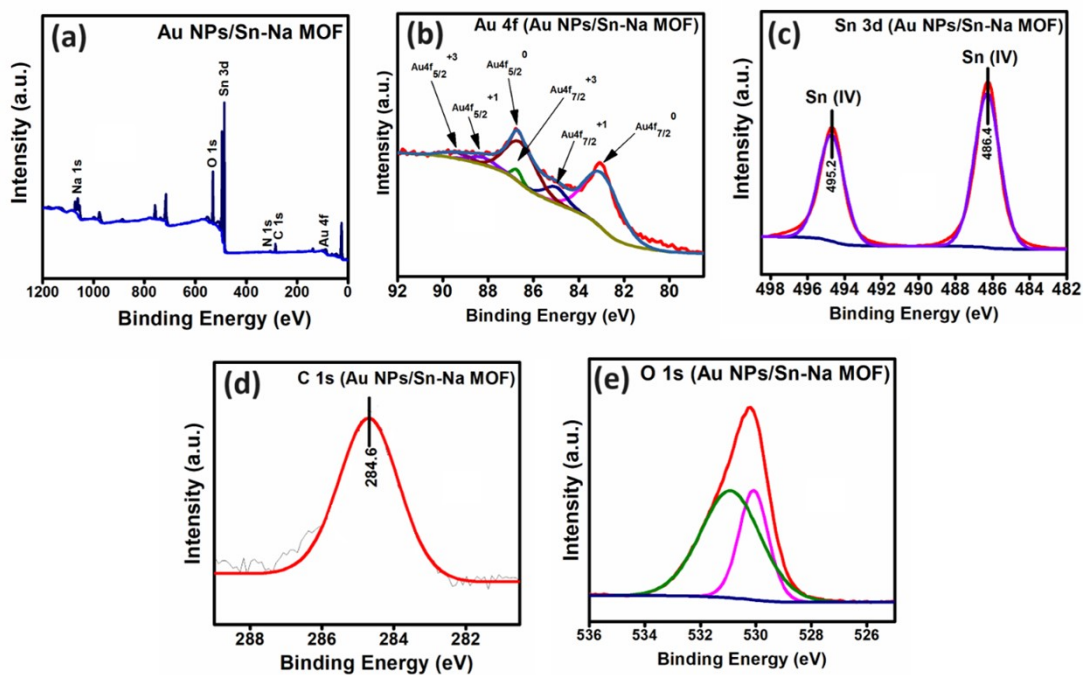


Fig. S11 (a) XPS survey of Au NPs/Sn-Na MOF after catalytic reaction, XPS Spectra of (b) Au 4f, (c) Sn 3d, (d) C 1s, and (e) O 1s

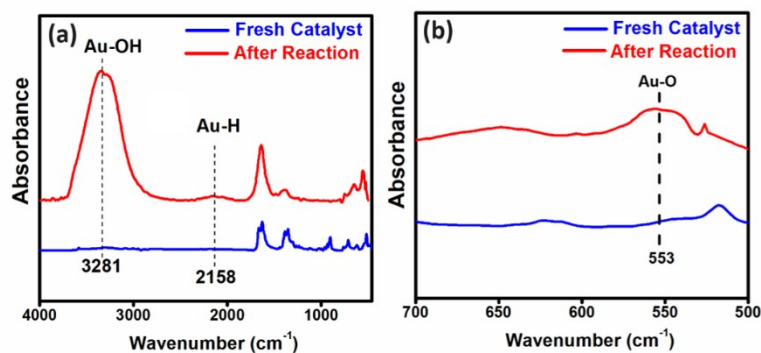


Fig. S12 ATR-IR spectra of fresh catalyst and recovered catalyst after catalytic reaction.

Table S1: Previous reported high performance bifunctional electrocatalysts for HER and OER

Catalysts	Electrolyte	Current Density (mA cm ⁻²)	HER Overpotential (mV)	Tafel slope (mV dec ⁻¹) (HER)	Substrate	OER (Overpotential)	OER (Current Density)	Reference
Ni-MOF@Pt	0.5 M H ₂ SO ₄	10	43	30	GCE	-	-	17
Ni(OH) ₂ /Pt(111)	0.1 M KOH	9	150		GCE	-	-	20
Pt ₁ /N-C	1 M NaOH	10	46	36.8	Carbon Cloth	-	-	18
Pt/MoS ₂	0.1 M H ₂ SO ₄	10	145	96	GCE	-	-	19
MoS ₂ /Au	0.5 M H ₂ SO ₄	10	330	57	GCE	-	-	21
CuS/Au	0.5 M H ₂ SO ₄	10	179	75	GCE	-	-	22
RuAu SAA	1 M KOH	10	20	37	GCE	-	-	40
Au@PD-COP-II	1 M KOH	50	184	85	Nickel Foam	288	50	27
NiCo ₂ O ₄ -P-COP	0.1 M KOH	10	144	39	Glassy Carbon	325	45	48
Au@AuIr ₂	0.5 M H ₂ SO ₄	10	29	58.3	GCE	261	10	27
Au doped kCo-Ni hydroxide	6 M NaOH	10	35	92	GCE	340	10	31
NC-PB@CNT	1 M KOH	10	152	108	NC-PB@CNT	240	10	32
Ir/MoS ₂ Nanoflowers	0.5 M H ₂ SO ₄	10	35	30.78	Ir/MoS ₂ Nanoflowers	270	10	16
Au NPs/Sn-Na MOF	1 M KOH	10	129	62.3	GCE	650	20	This Work