Supporting Information

Enhanced Electrochemical Performance with Co-V-O Bridges and Dual Active Sites for Water Electrolysis Applications

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Fig .S1 (a) Nyquist plot for 1.0 M KOH (b Chronoamperometric stability tests (c) overpotentials of the material at current densities of 10 mA cm^{-2} (d) Nyquist plot for acidic solution (e) Nyquist plot fo 1.0 M PBS (f) Nyquist plot for overall water splitting

Fig. S2. (a) SEM image and (b) TEM image of Co-V_2O_5 after catalysis.

Fig.S3. (a) XPS survey spectrum, (b) O 1s spectrum, (c) V 2p XPS spectrum and (d) Co 2p spectrum of Co-V_2O_5 after catalysis.

Fig. S4. (a-d) Nyquist curves.

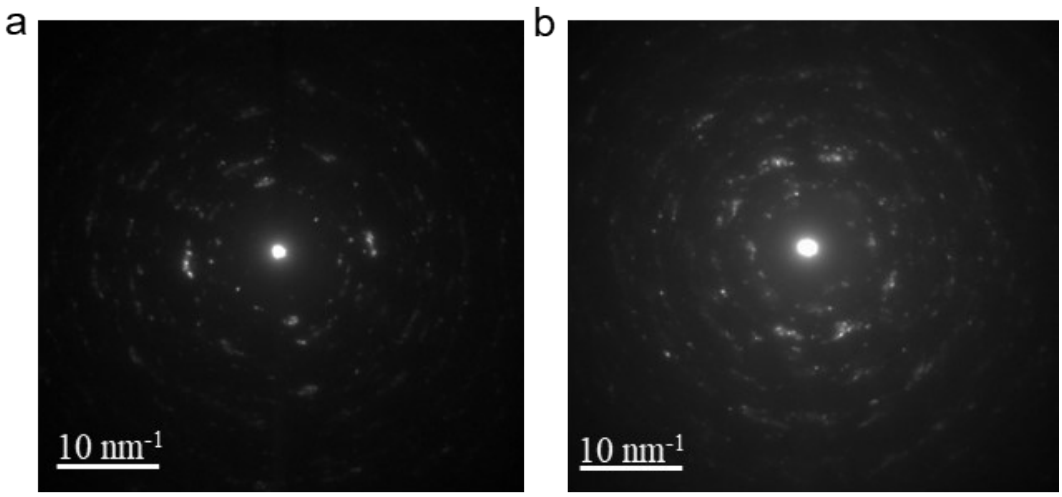

Fig. S5. (a) Selected Area Electron Diffraction before Sample Co-V_2O_5 Catalysis (b) Selected Area Electron Diffraction after Sample Co-V_2O_5 catalysis.

Table S1 The solution resistance (*Rs*) and charge transfer resistance (*Rct*) values were obtained by obtained by fitting different materials.

Materials	***Rs / Ω***	***CPE-T (Q)***	***CPE-P (n)***	***Rct / Ω***
V_2O_5	3.162	4.104	1.309	79.502
Co- V_2O_5*-3%*	2.651	3.746	1.586	72.735
Co- V_2O_5*-6%*	2.403	1.376	1.829	53.931
Co- V_2O_5*-9%*	2.973	4.334	1.567	62.401