Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary Information

Non-contact electric potential measurements of electrode components in operating polymer electrolyte fuel cell studied by near ambient pressure XPS

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† Electronic supplementary information (ESI) available.

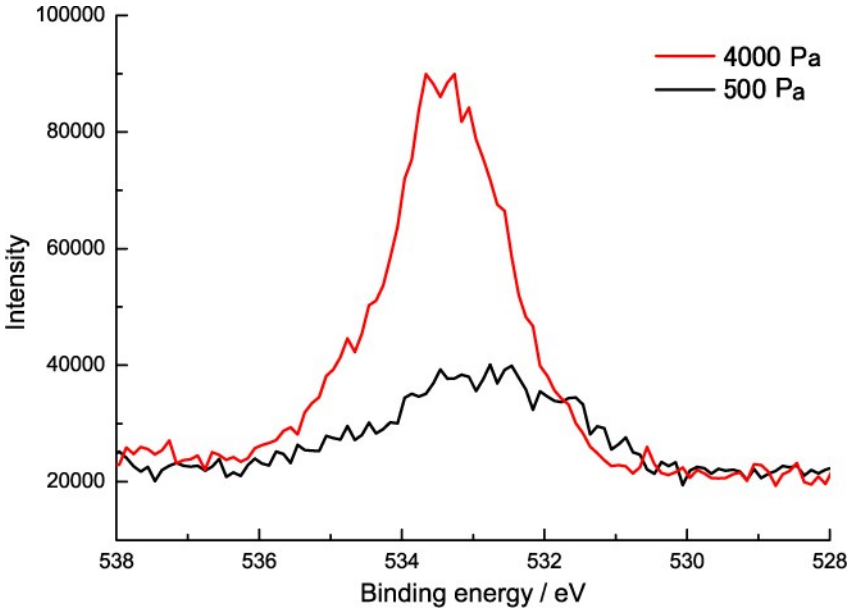

Figure S1. O 1s spectra recorded with water vapor pressures of 500 and 4,000 Pa at the cathode. The spectra were measured at a voltage of 0.4 V.

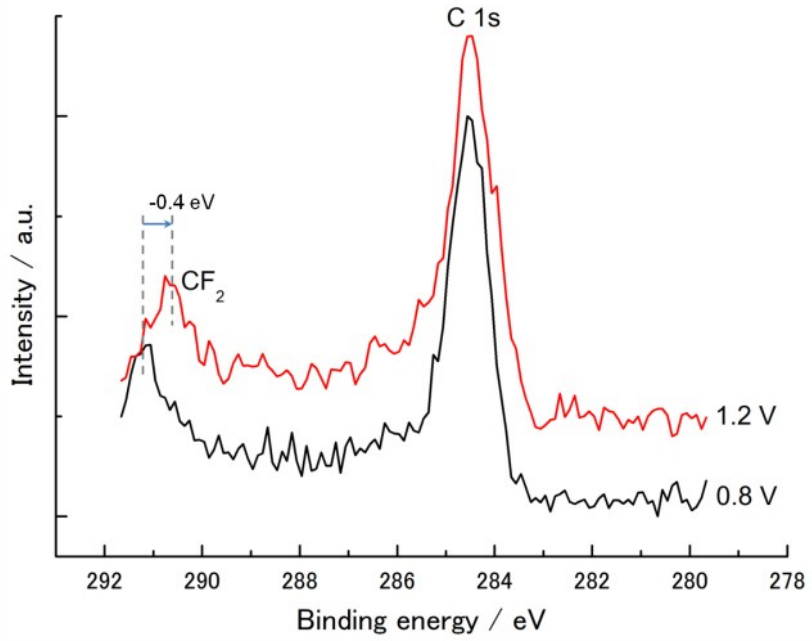

Figure S2. C 1s spectra recorded with a wider energy region at the voltages of 0.8 and 1.2 V. The contribution of -CF_2- in Nafion is clearly seen.

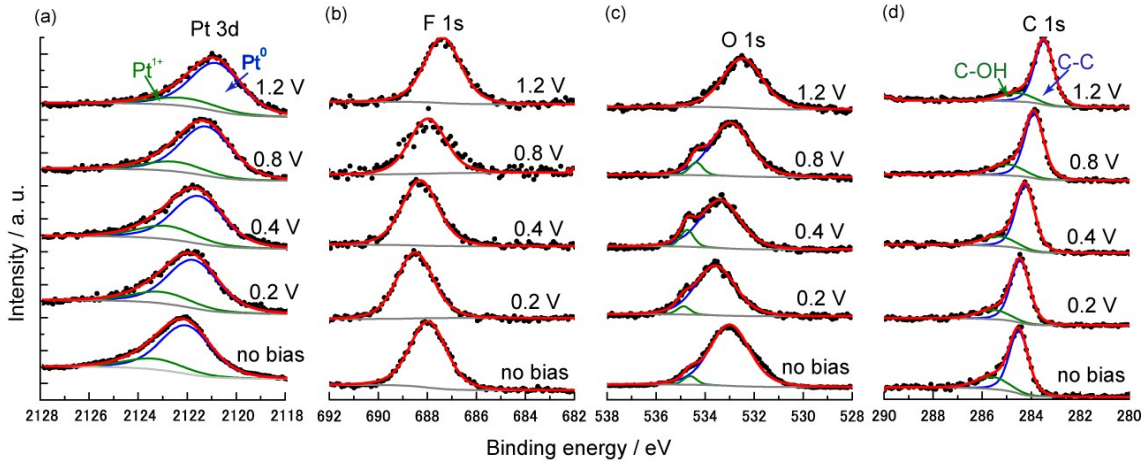

Figure S3. HAXPES of (a) Pt 3d, (b) F 1s, (c) O 1s and (d) C 1s at the anode under various voltages between the cathode and anode. These spectra were recorded at a water vapor pressure of 4000 Pa and a H2 gas pressure of 200 Pa at the anode, whereas N2 gas was supplied to the cathode.

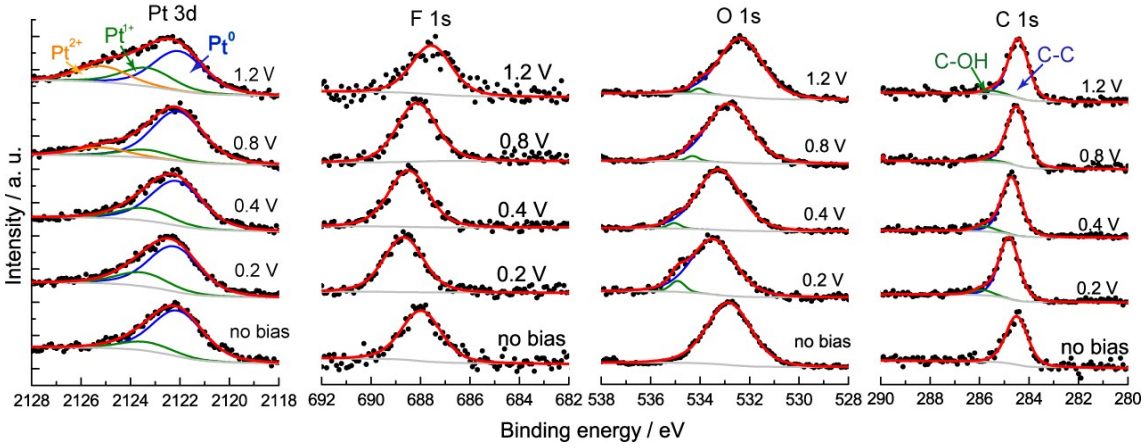

Figure S4. HAXPES of (a) Pt 3d, (b) F 1s, (c) O 1s and (d) C 1s at the cathode under various voltages between the cathode and anode under O_2 atmosphere.

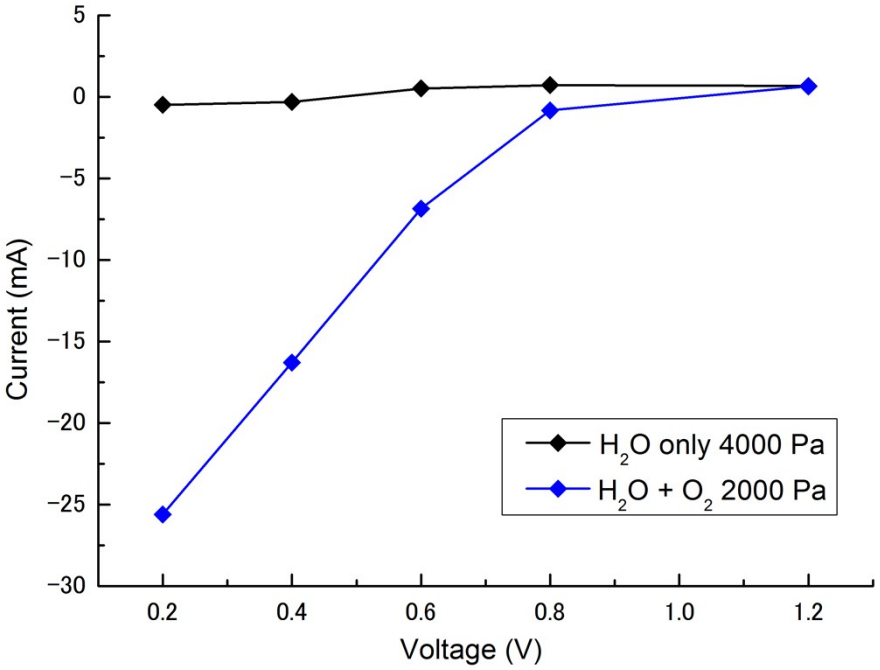

Figure S5 The current changes with the voltage increasing at the cathode under only water vapor atmosphere and O_2 flowing atmosphere.