

Supporting information for

Anhydrous proton exchange membrane operated at 200 °C and well-aligned anode catalyst

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Additional figures

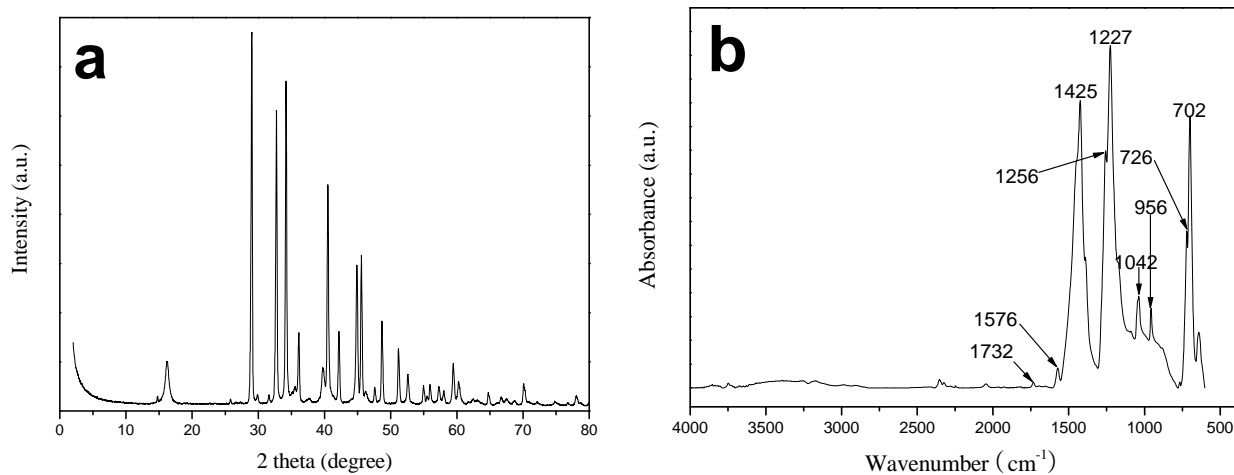


Fig. S1 (a) XRD pattern and (b) FTIR spectrum of the aligned anode catalyst.

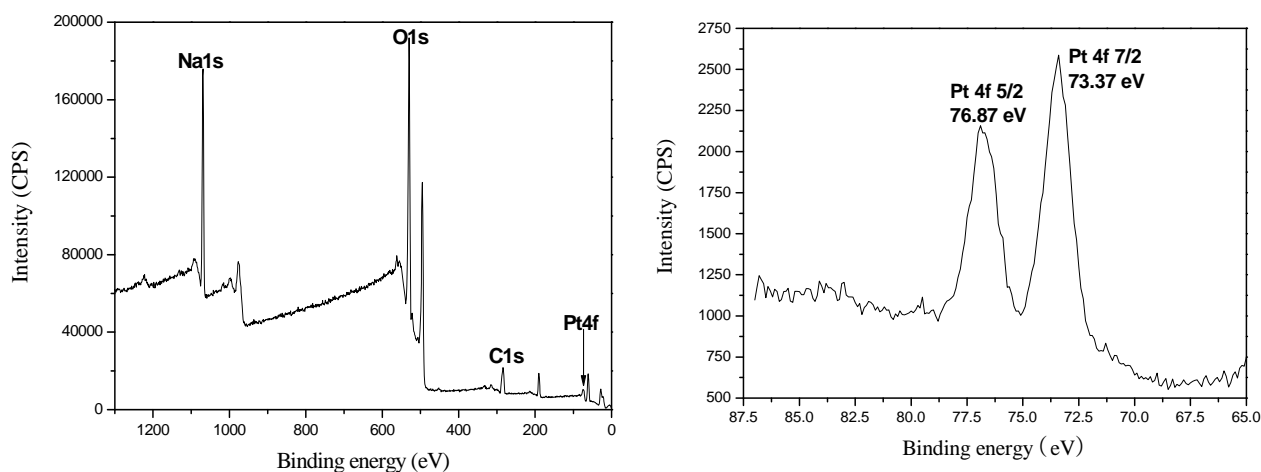


Fig. S2 XPS spectrum of (a) the aligned anode catalyst and (b) high-resolution XPS spectrum of Pt 4f region.

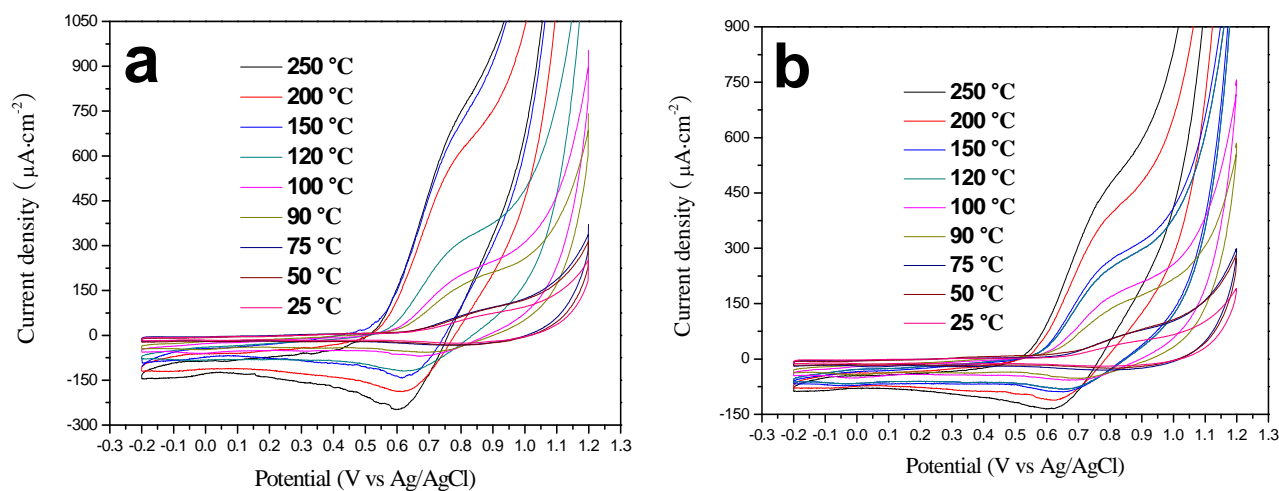


Fig. S3 Cyclic voltammograms recorded in pure [MIm][Tfo] (a) parallel and (b) perpendicular to the channels of catalysts in the presence of methanol gas flow. Catalyst is used as working electrode, Pt minigrad is counter electrode, Ag/AgCl is reference electrode and melting [MIm][Tfo] is electrolyte. The 2nd cycle were plotted at the scan rates of $100 \text{ mV}\cdot\text{s}^{-1}$ in the temperature range of 25-250 °C.

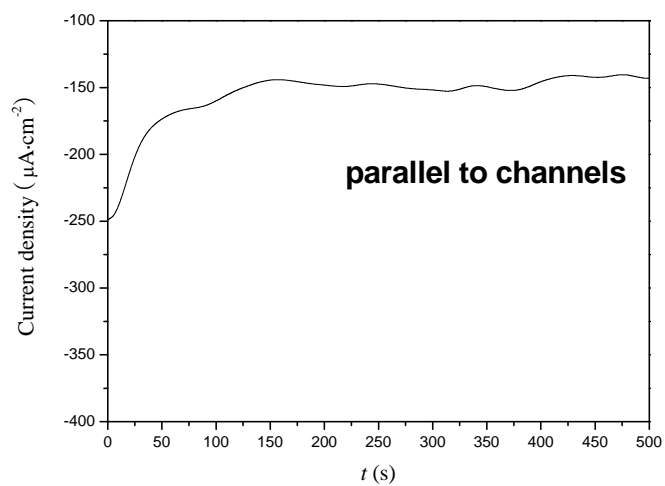


Fig. S4 Chronoamperometric experiments obtained with well-aligned low-Pt catalyst at 0.59 V in melting [MIm][Tfo] under methanol gas bubbling at 250 °C. To record the stability, the methanol gas was introduced parallel to the channels of catalysts.