

## *Supplementary Information*

### Alkali-stable partially-fluorinated poly(arylene ether) anion exchange membranes with claw-type head for fuel cells

Xiu Qin Wang, Chen Xiao Lin, Fang Hua Liu, Ling Li, Qian Yang, Qiu Gen Zhang, Ai Mei Zhu, Qing Lin Liu \*

*Fujian Provincial Key Laboratory of Theoretical and Computational Chemistry, Department of Chemical & Biochemical Engineering, The College of Chemistry and Chemical Engineering, Xiamen University, Xiamen 361005, P. R. China.*

\*Corresponding author:

Q.L. Liu, E-mail: qlliu@xmu.edu.cn, Tel: 86-592-2188072, Fax: 86-592-2184822.

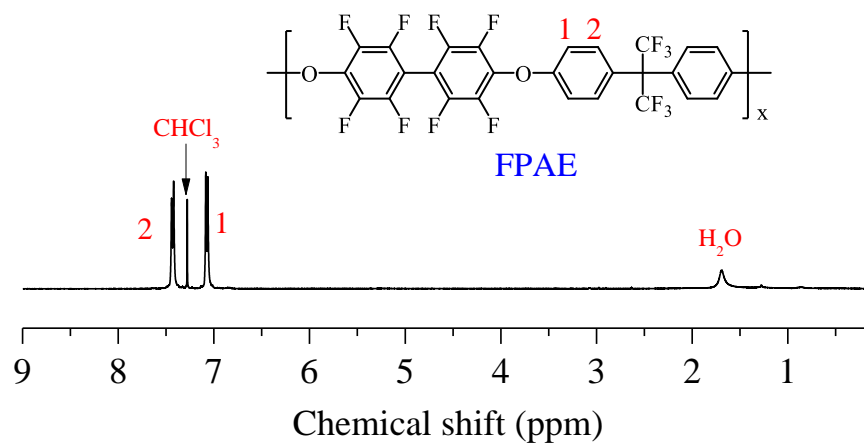


Fig. S1  $^1\text{H}$  NMR spectrum of FPAE.

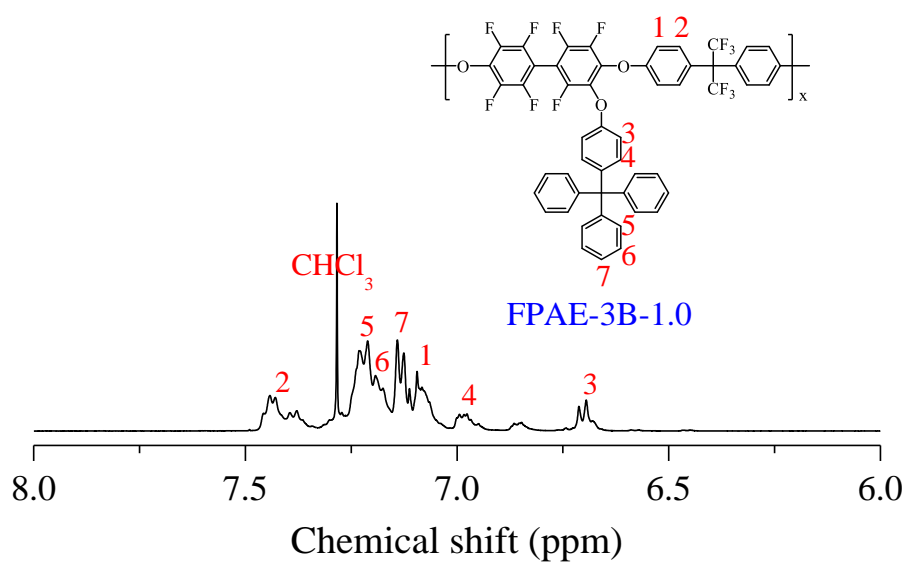


Fig. S2  $^1\text{H}$  NMR spectrum of FPAE-3B-1.0.

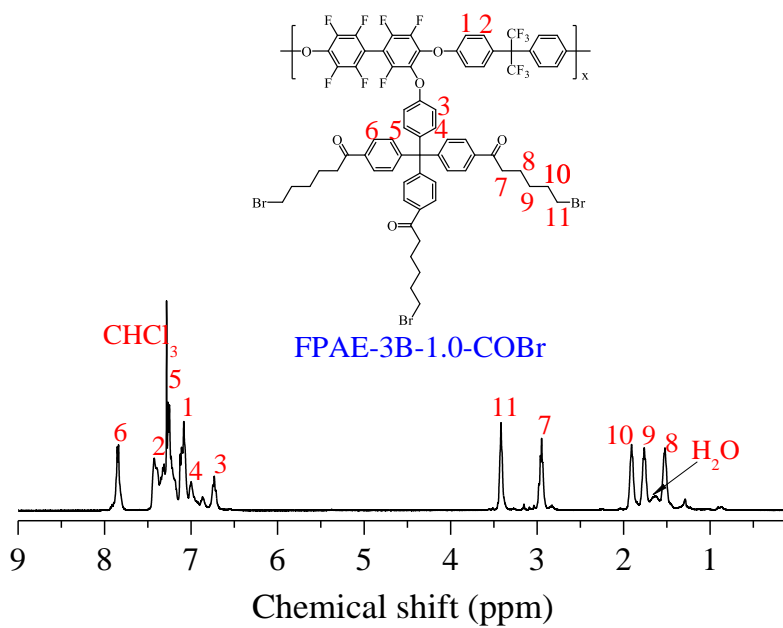


Fig. S3 <sup>1</sup>H NMR spectrum of FPAE-3B-1.0-COBr.

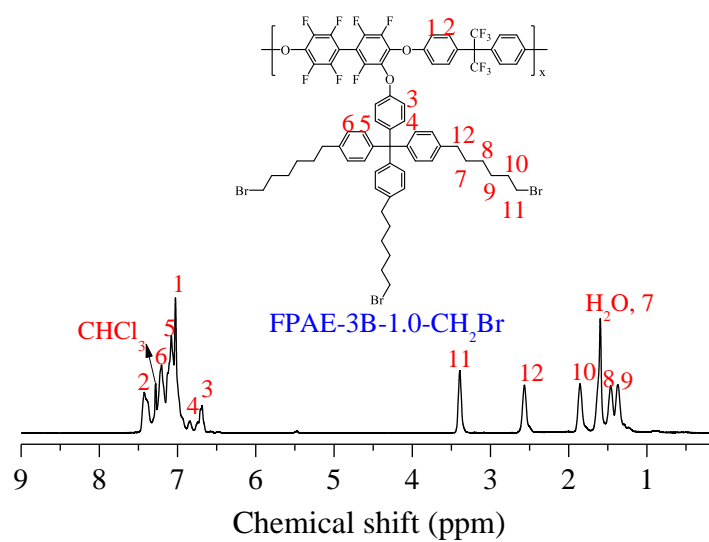


Fig. S4 <sup>1</sup>H NMR spectrum of FPAE-3B-1.0-CH<sub>2</sub>Br.

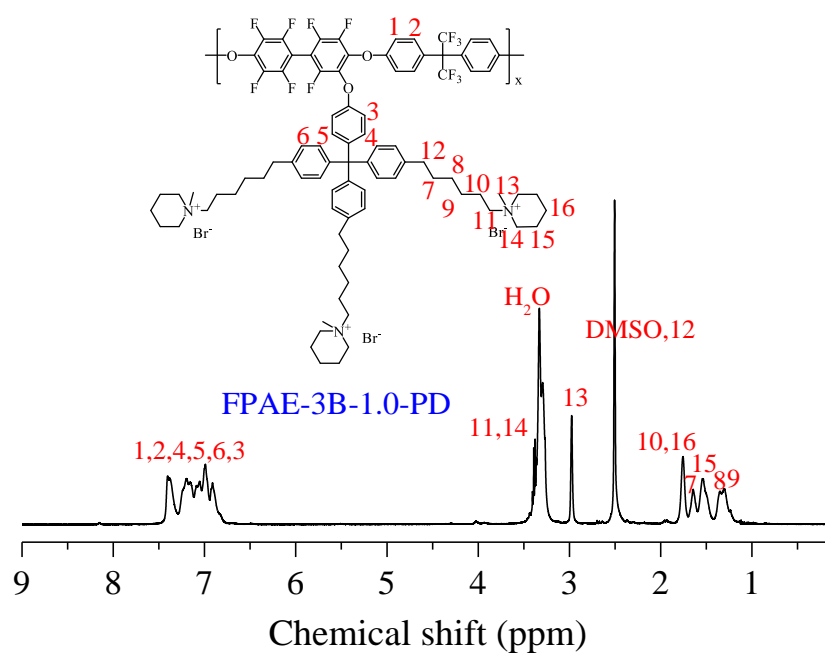


Fig. S5  $^1\text{H}$  NMR spectrum of FPAE-3B-1.0-PD.

Table S1 Mechanical properties of FPAE-3B-3.0-PD before and after alkaline stability test.

FPAE-3B-3.0-PD	Tensile Strength (MPa)	Elongation at Break (%)
Before	15.9 $\pm$ 1.1	18.2 $\pm$ 0.9
After	15.6 $\pm$ 1.5	17.6 $\pm$ 1.3

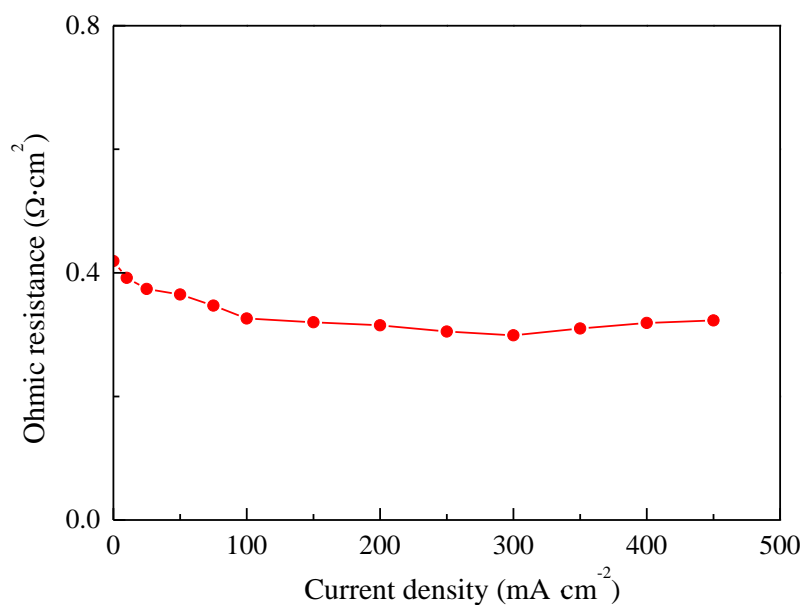


Fig. S6 Ohmic resistance of MEA using FPAE-3B-3.0-PD as the membrane at 60 °C.