

Supplementary information

Enabling the mesopore engineering inside Al-rich MOR zeolite by sequential fluorination-acid leaching-alkaline treatment strategy

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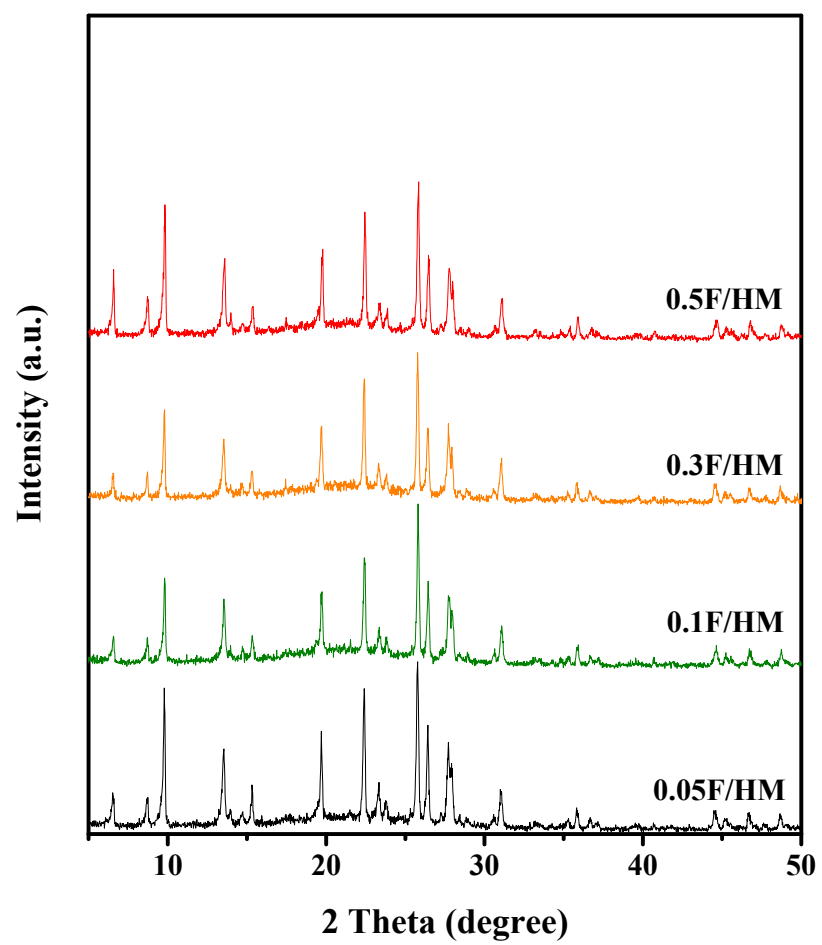


Figure S1. XRD pattern of xF/HM sample.

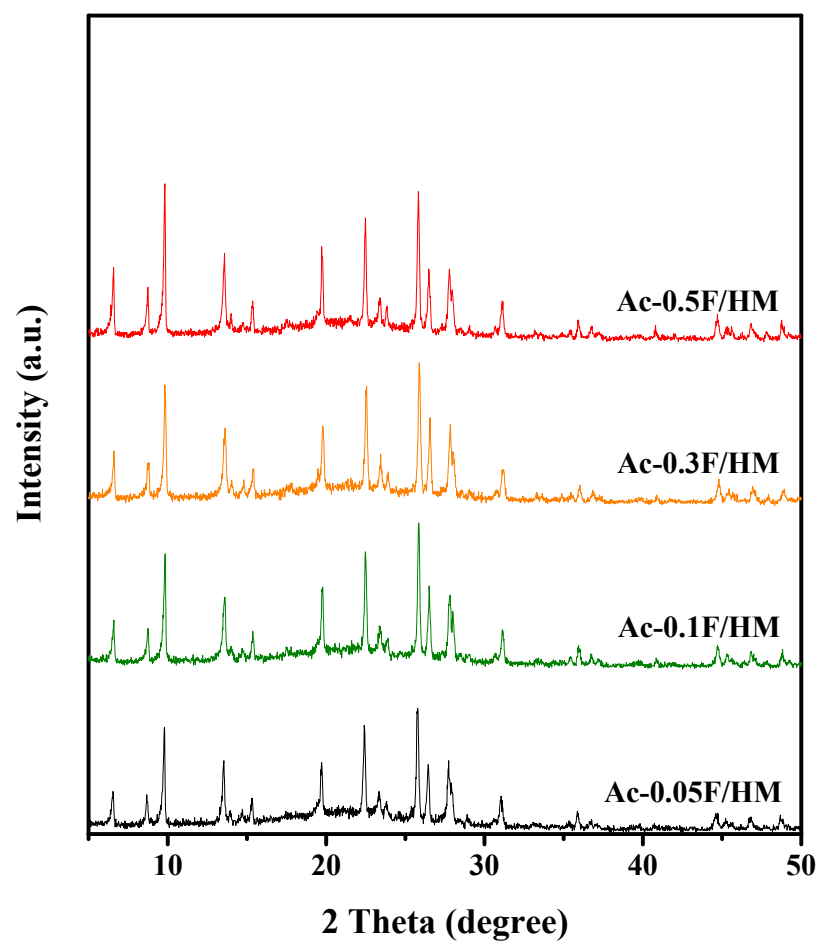


Figure S2. XRD pattern of Ac-xF/HM sample.

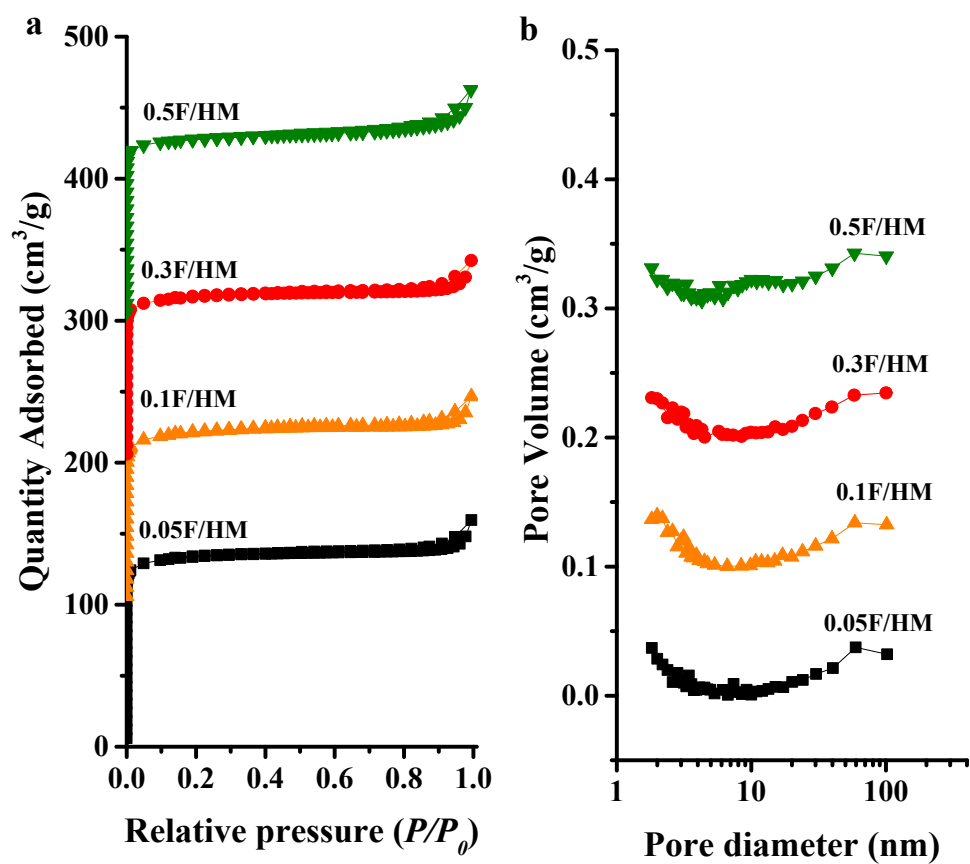


Figure S3. a) N_2 adsorption-desorption isotherms of $x\text{F}/\text{HM}$ samples, and b) Barrett-joyner-halenda (BJH) pore size distribution (PSD) derived from the the adsorption branches of the isotherms.

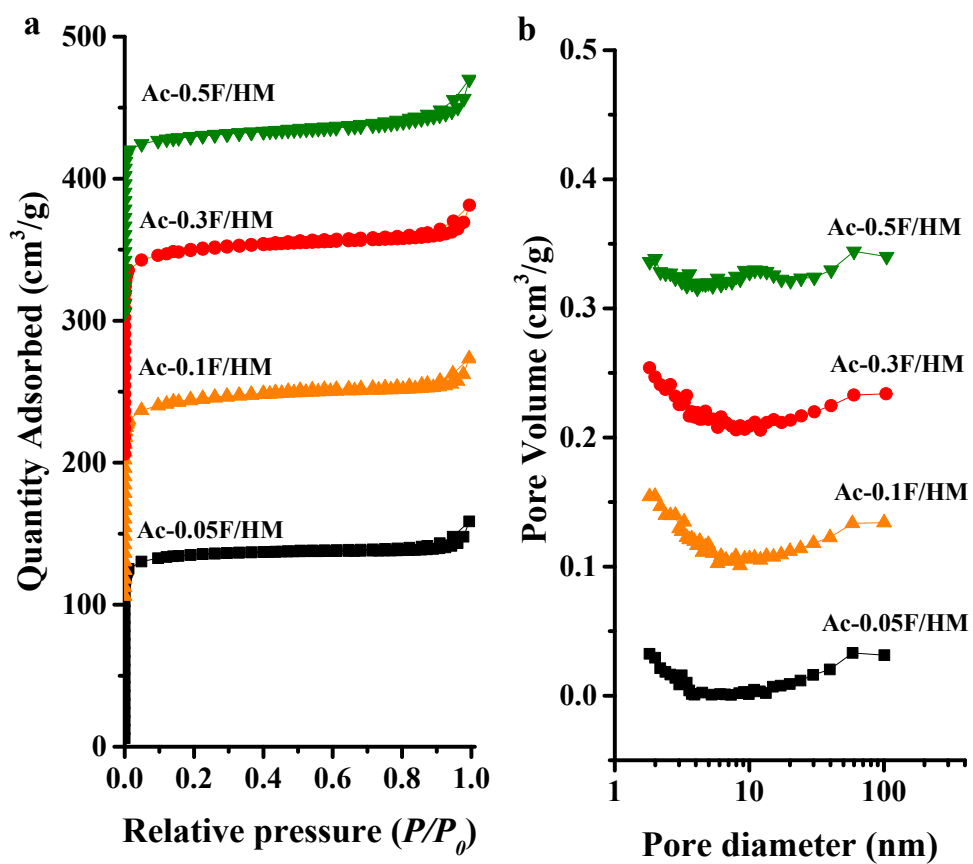


Figure S4. a) N₂ adsorption-desorption isotherms of Ac-xF/HM samples, and b) Barrett-joyner-halenda (BJH) pore size distribution (PSD) derived from the the adsorption branches of the isotherms.

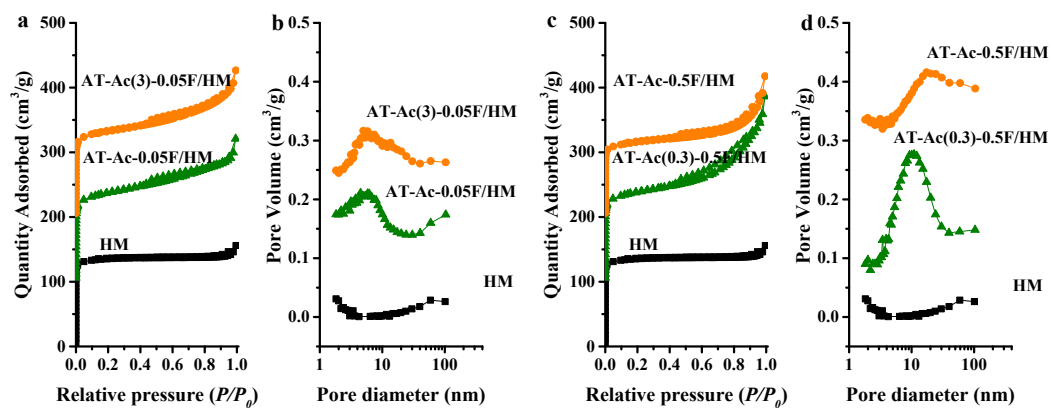


Figure S5 a, c) N₂ adsorption-desorption isotherms of pristine HM and treated samples, b, d) Barrett-joyner-halenda (BJH) pore size distribution (PSD) derived from the the adsorption branches of the isotherms

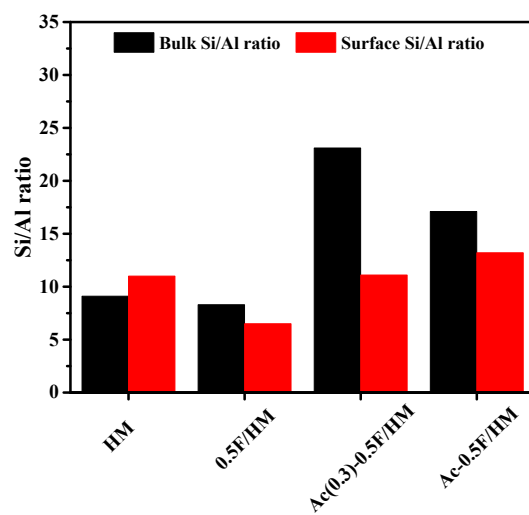


Figure S6 bulk and surface Si/Al of pristine HM and treated samples

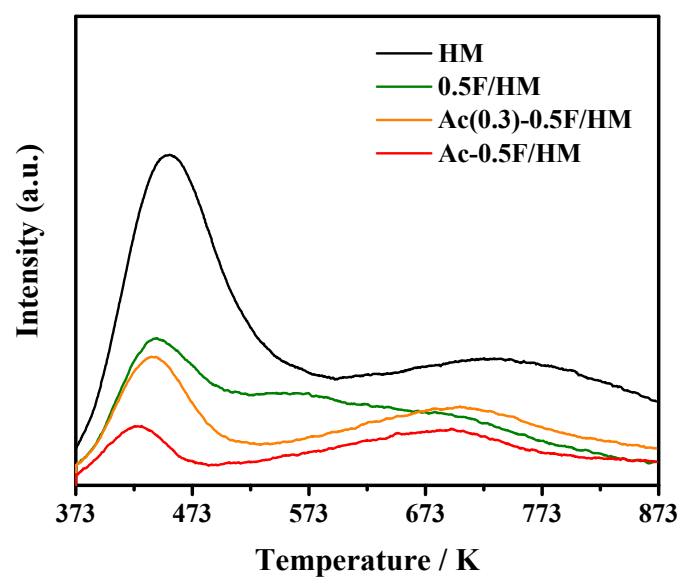


Figure S7 NH₃-TPD profiles of pristine HM and treated samples

Table S1 Concentration of the Brønsted acid sites in HM and Ac-xF/HM measured in quantitative experiments of pyridine (Py) and 2,6-Di-tert-butylpyridine (dTBPY) sorption.

Sample	Brønsted acid ^[a] [$\mu\text{mol g}^{-1}$]	Retention rate of all Brønsted acid ^[b]	Retention rate of external Brønsted acid ^[c]
HM	241	100%	100%
Ac-0.05/HM	114	47.5%	71.1%
Ac-0.1/HM	86	35.8%	64.5%
Ac-0.5/HM	40	16.8%	57.7%

[a] concentration of Brønsted acid sites (BAS) per gram of samples, measured by pyridine adsorption IR (peak at 1546 cm^{-1}). [b] Retention rate of all Brønsted acid, measured by pyridine adsorption IR (peak at 1546 cm^{-1}). [c] Retention rate of external Brønsted acid, measured by 2,6-di-tert-butylpyridine adsorption IR (peak at 1615 cm^{-1})