Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Supplementary Materials

Evolution of D6R units in the interzeolite transformation from FAU, MFI or *BEA into AEI: transfer or reassembly?

Juan Zhang,[a] Yueying Chu,[b] Feng Deng,[b] Zhaochi Feng,*[c] Xiangju Meng,*[a] and Feng-Shou Xiao*[a]

[a] Key Lab of Applied Chemistry of Zhejiang Province, Department of Chemistry, Zhejiang University, Hangzhou, 310007, China.

[b] State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Key Laboratory of Magnetic Resonance in Biological System, National Center for Magnetic Resonance in Wuhan, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, Wuhan, 430071, China

[c] State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, 457 Zhongshan Road, Dalian, 116023, China

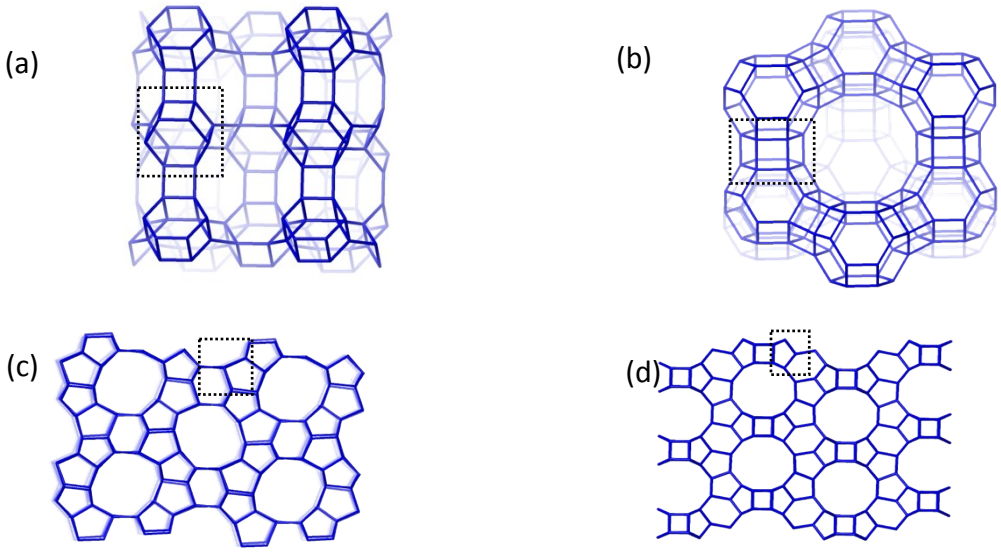

Figure S1. Framework structures of (a) AEI, (b) FAU, (c) MFI, and (d) *BEA zeolites. The dotted-line squares indicate the typical ring building units (D6R and S5R) in the zeolite frameworks.

Table S1. Structural parameters of FAU, AEI, MFI and *BEA zeolites.

Zeolites	Ring sizes	Channels	Composite building units
FAU	12, 6, 4MR	7.4*7.4	D6R, *sod*
AEI	8, 6, 4MR	3.8*3.8	D6R
MFI	10, 6, 5, 4MR	[100] 5.1*5.5; [010] 5.3*5.6	*mor, cas, mfi, mel*
*BEA	12, 6, 5, 4MR	<100> 6.6*6.7; [001] 5.6*5.6	*mor, bea, mtw*

Table S2. BET surface area and microporous volume of AEI zeolites transformed from FAU, MFI and *BEA zeolites.

Zeolites	Si/Al	BET surface area (m^2/g)	Micropore volume (cm^3/g)
AEI-FAU	8.2	602	0.26
AEI-MFI	9.4	587	0.26
AEI-*BEA	8.5	571	0.25

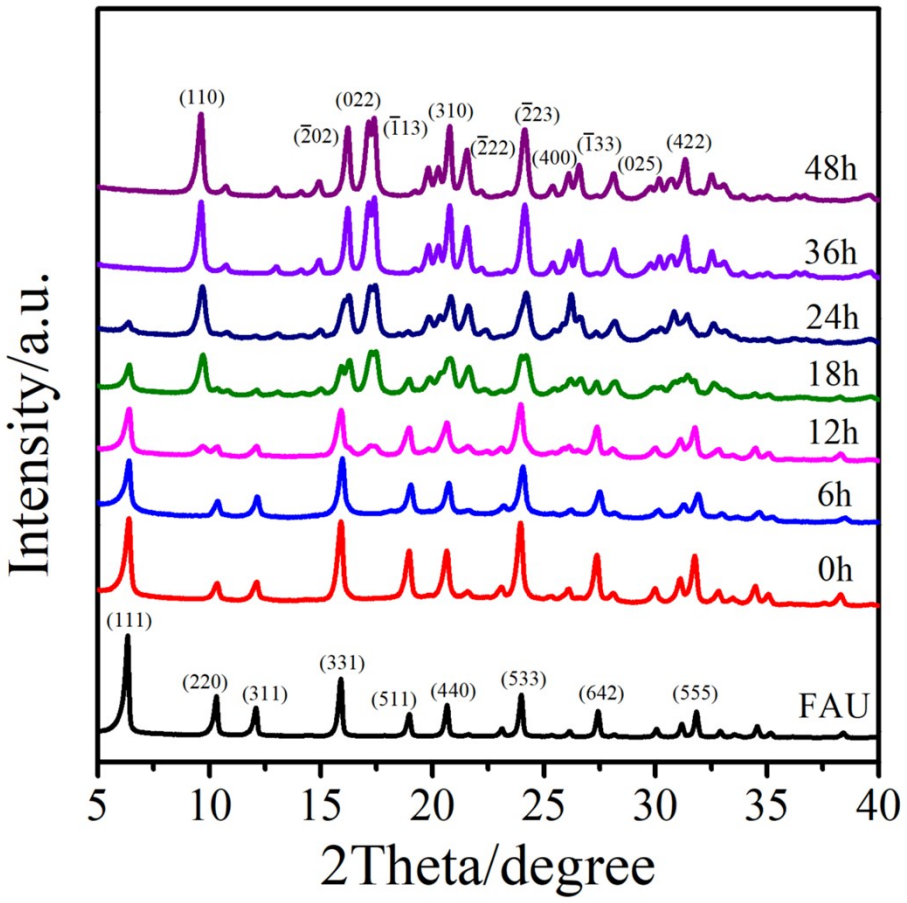

Figure S2. XRD patterns of the samples synthesized at 413 K by interzeolite transformation of FAU into AEI zeolite.

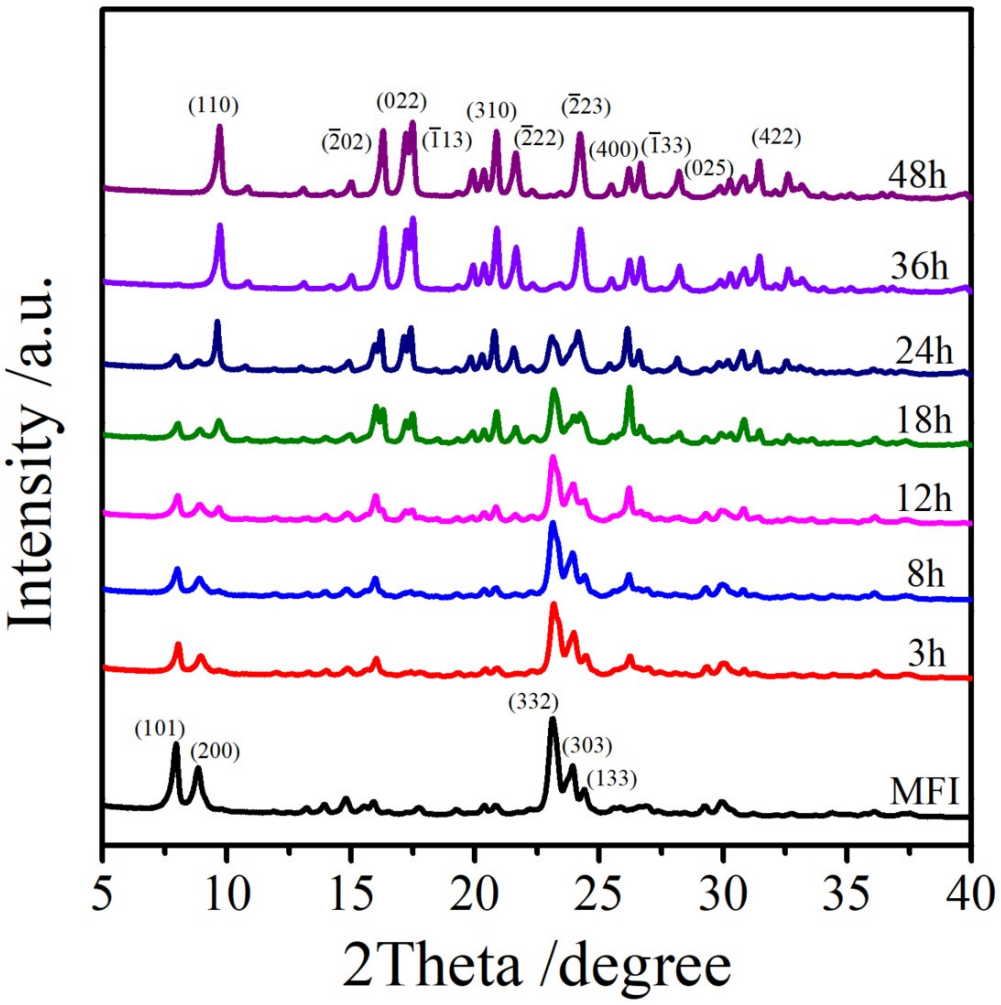

Figure S3. XRD patterns of the samples synthesized at 413 K by interzeolite transformation of MFI into AEI zeolite.

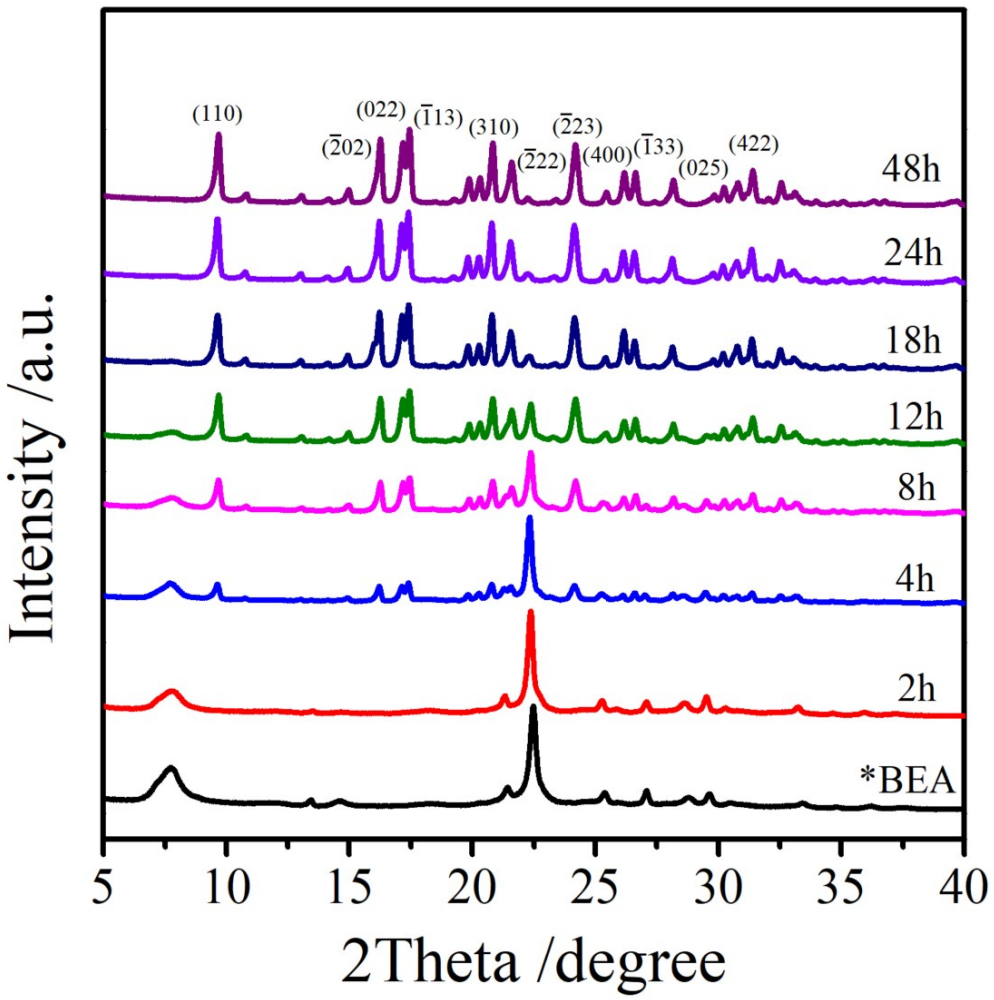

Figure S4. XRD patterns of the samples synthesized at 413 K by interzeolite transformation of *BEA into AEI zeolite.

Table S4. The experimentally observed frequencies and their corresponding assignments in the UV Raman spectra of FAU, AEI, *BEA and MFI zeolites, as well as the theoretical calculated frequencies of S4R, S5R and S6R units extracted from MFI framework.

Samples	Band position (cm^{-1})			
	D6R	S6R	S5R	S4R
FAU	300	/	/	500
AEI	300, 335	/	/	475
MFI	/	292	375/382	479
*BEA	/	313, 340	396	462
Theoretical calculated frequencies of AEI and MFI	286, 303	286	392	492