

## Supplementary Information

### Highly stable mesoporous molecular sieves TZM prepared by zeolitic subunits of

#### ZSM-5 desilication and its catalytic performance for CO<sub>2</sub> reforming of CH<sub>4</sub>

Junqiang Xu<sup>a, †</sup>, Qiang Zhang<sup>b, †</sup>, Fang Guo<sup>a, \*</sup>, Yaoqiong Wang<sup>a</sup>, Jiaqing Xie<sup>c</sup>

*a. School of Chemistry & Chemical Engineering, Chongqing University of technology, Chongqing 400054, China;*

*b. School of Chemistry & Chemical Engineering, Chongqing University, Chongqing 400044, China;*

*c. School of Chemistry & Environmental Engineering, Sichuan University of Science & Engineering, Zigong, Sichuan, 643000, China.*

† *These authors contributed equally to this work.*

\* *Corresponding author. Tel./fax: +86-23-62563460*

*E-mail address: guofang@cqut.edu.cn*

#### \* Corresponding author

#### Mailing address for correspondence:

Dr. Guo, Fang (Prof.)

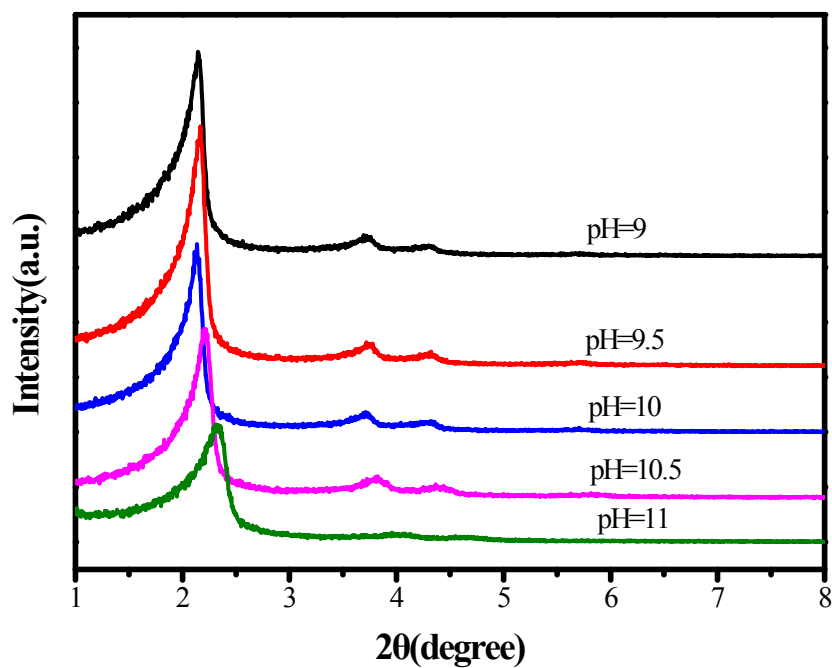
School of Chemistry & Chemical Engineering, Chongqing University of Technology,

No.69 Hongguang Avenue, Banan district, Chongqing 400054, China

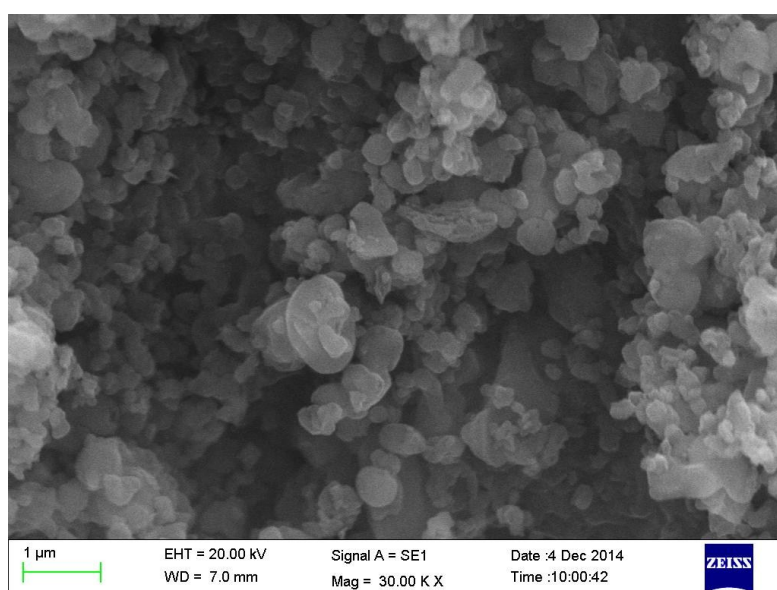
Tel: +86-23-62563460

Fax: +86-23-62563462

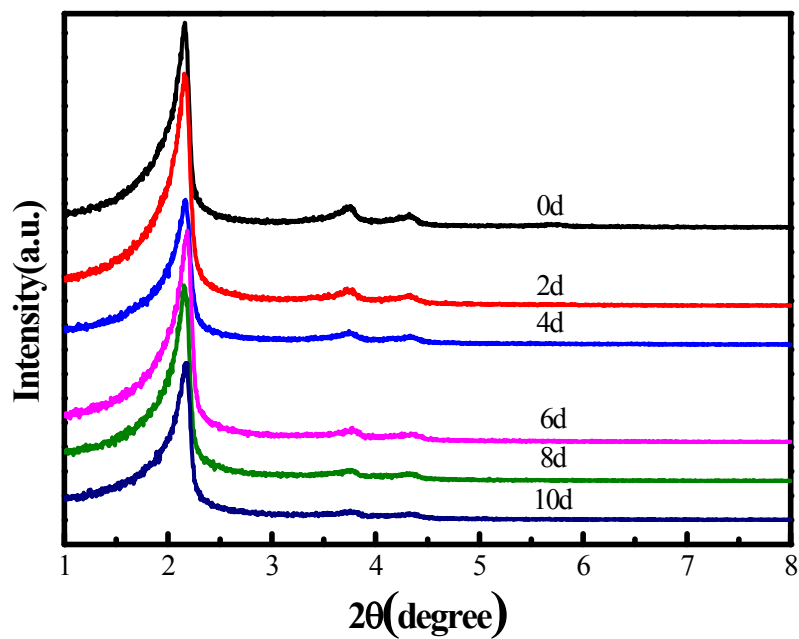
E-mail: [guofang@cqut.edu.cn](mailto:guofang@cqut.edu.cn)



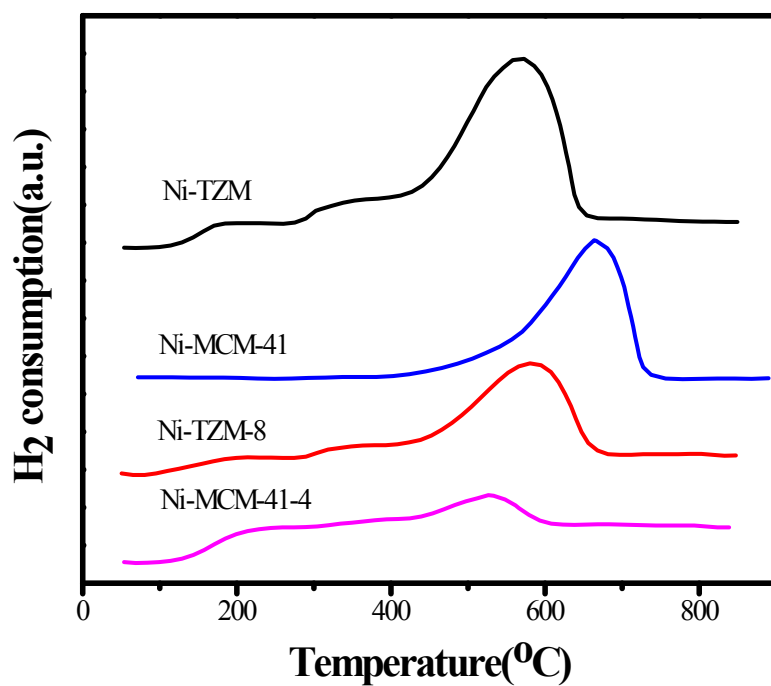
**Fig. S1.** X-ray diffraction of the TZM samples assembled from the zeolite subunits under different pH value.



**Fig. S2.** SEM of mesoporous TMM molecular sieves



**Fig. S3.** X-ray diffraction patterns of the calcined TZM after hydrothermal treatment in boiling water for 0~10 days in the low angle region (1-8°).



**Fig.S4.** H<sub>2</sub>-TPR profiles for 5%Ni-TZM, 5%Ni-TZM-8, 5%Ni-MCM-41 and 5%Ni-MCM-41-4 catalysts.

Test conditions: 5% H<sub>2</sub> in Ar; flow rate=20 ml/min; heating rate=8 °C/min recorded

from 50 to 900 °C.