Supporting Information for

Alkaline-earth-metal doped TiO_2 for enhanced photodegradation and H_2 evolution – insight into mechanism

Chao Lv, Lili Wang, Xuefang Lan, Qi Yu, Minghui Zhang, Hualong Sun and Jinsheng Shi *

Qingdao Agricultural University, Department of Chemistry and Pharmaceutical Science, China

∗ Corresponding author at: Qingdao Agricultural University, Department of Chemistry and Pharmaceutical Science, Chengyang District, Qingdao, China E-mail address: jsshiqn@aliyun.com.

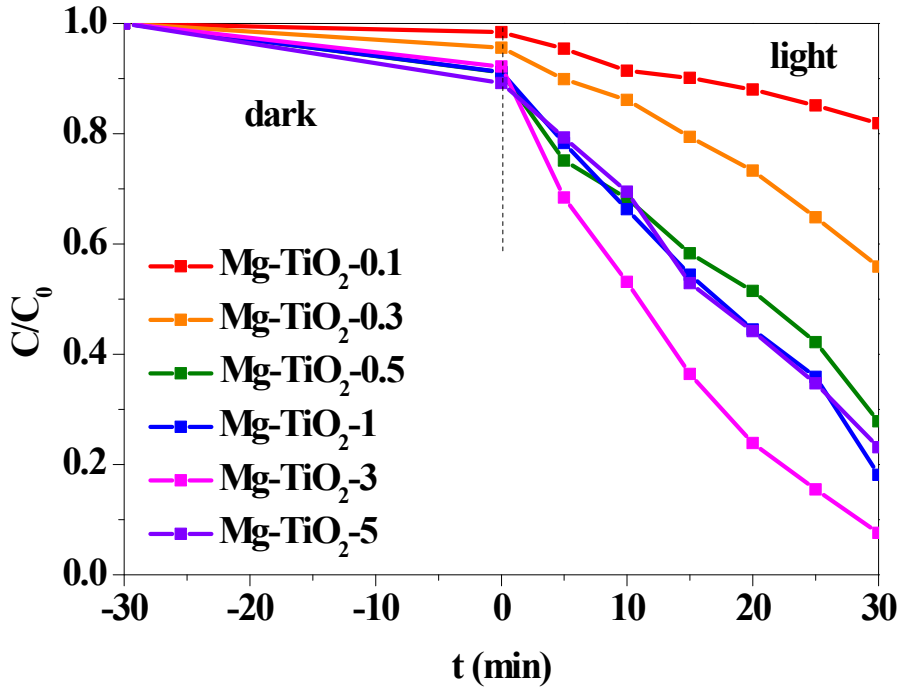

Fig. S1. (a) Photodegradation curves of RhB over Mg-TiO_2-x (x=0.1 %, 0.3 %, 0.5 %, 1.0 %, 3.0 % and 5.0%).

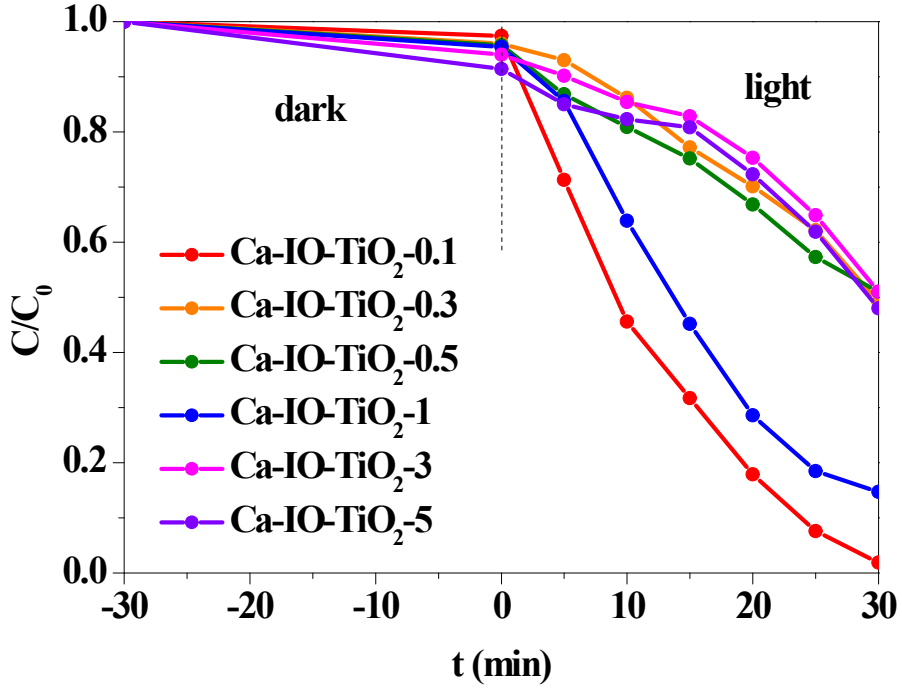

Fig. S2. (a) Photodegradation curves of RhB over Ca-TiO_2-x (x=0.1 %, 0.3 %, 0.5 %, 1.0 %, 3.0 % and

5.0%).

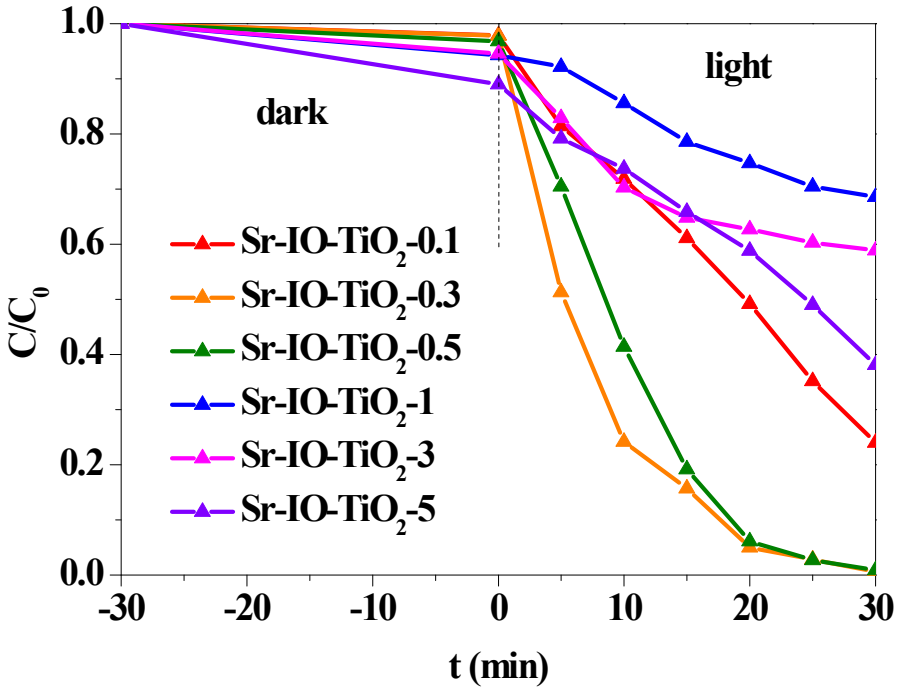

Fig. S3. (a) Photodegradation curves of RhB over Sr-TiO_2-x (x=0.1 %, 0.3 %, 0.5 %, 1.0 %, 3.0 % and 5.0%).

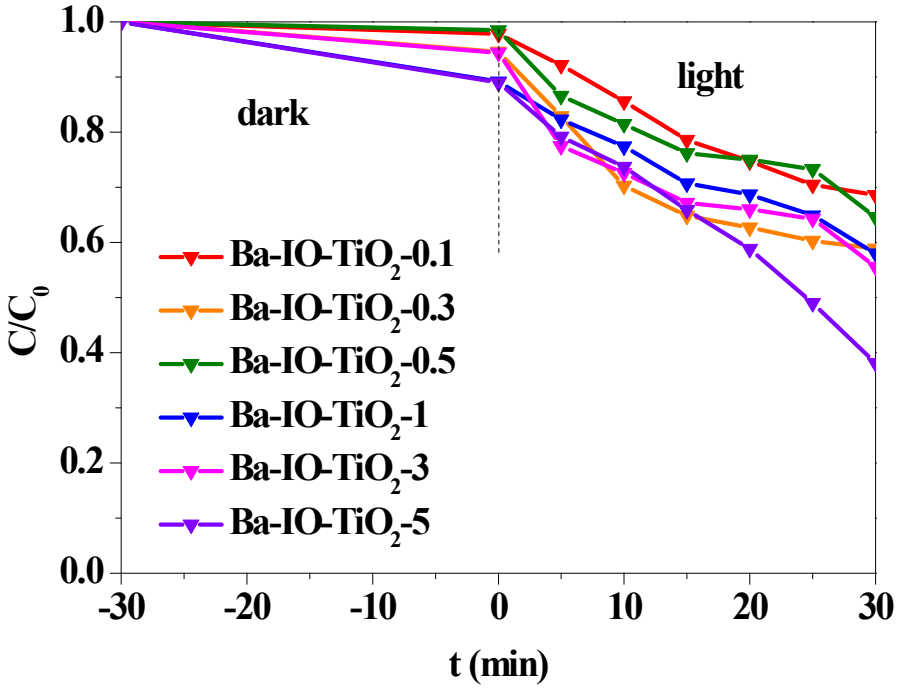

Fig. S4. (a) Photodegradation curves of RhB over Ba-TiO_2-x (x=0.1 %, 0.3 %, 0.5 %, 1.0 %, 3.0 % and 5.0%).

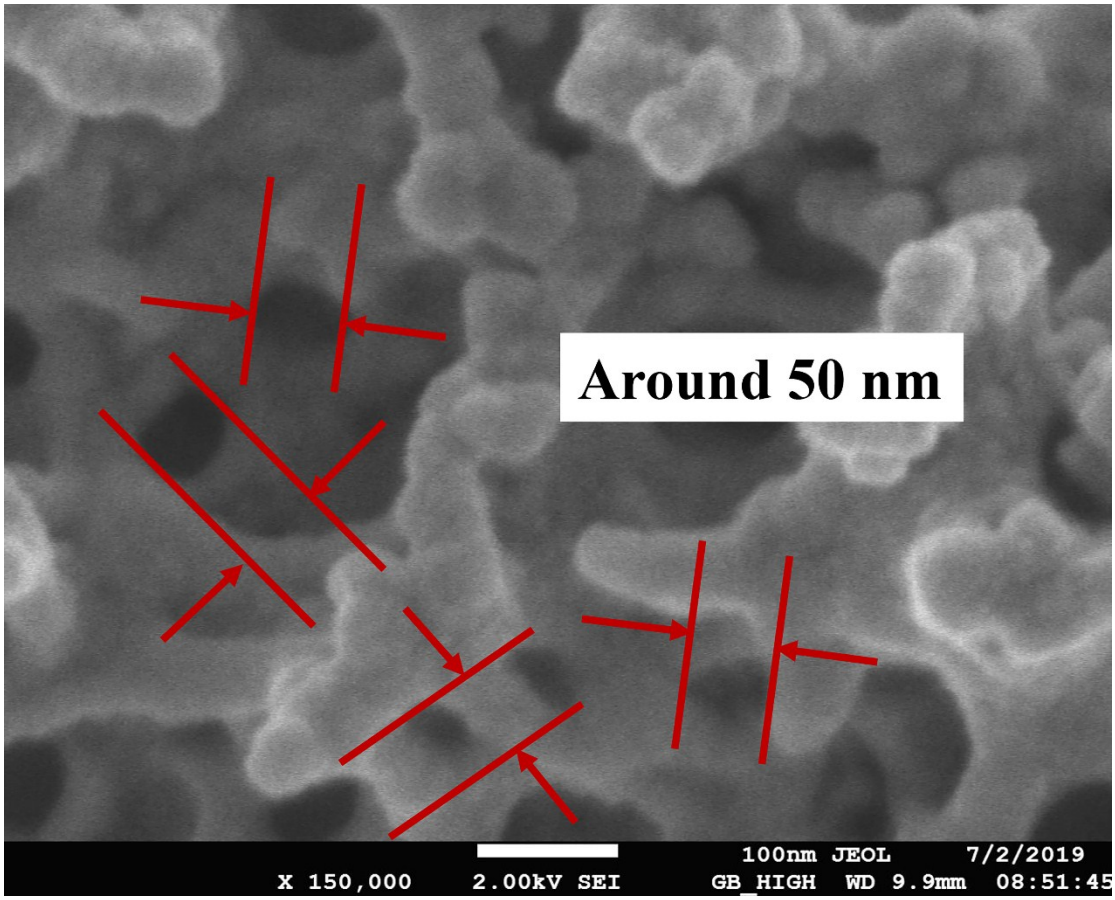

Fig. S5. SEM images of Mg-TiO_2-3.

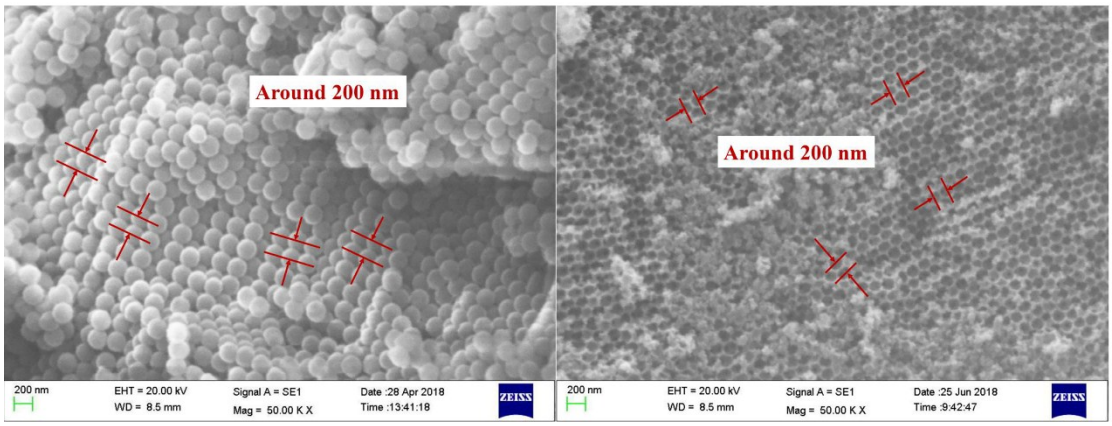

Fig. S6. SEM images of PS spheres and the inverse opal-TiO_2.

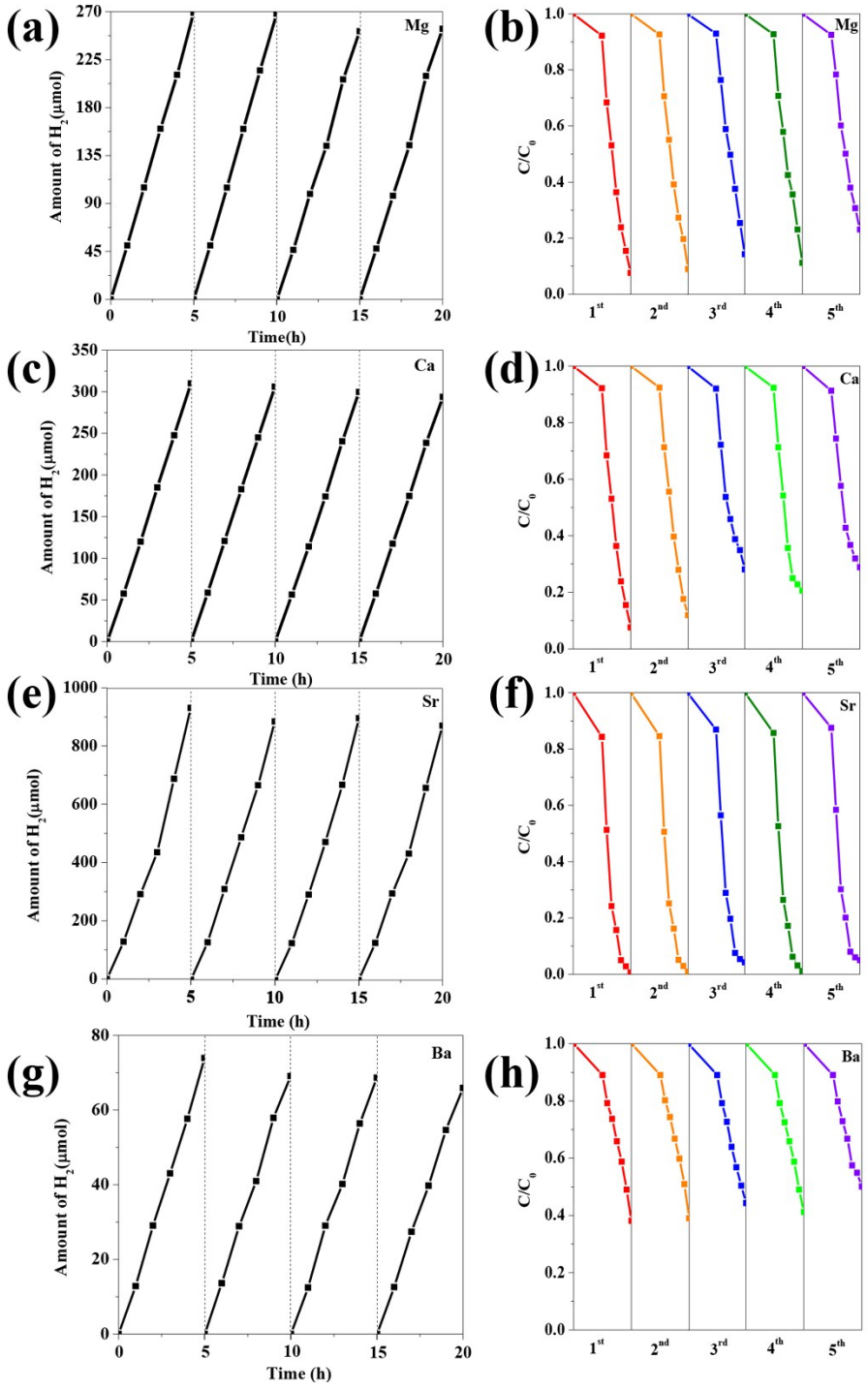

Fig. S7. The recycle experiment of AM-TiO_2-x in RhB degradation and H_2 production under simulated light.

Table S1

The calculation of energy band structure related parameters of AM-TiO_2-x.

catalysis	E_{fb} (V vs SCE)	E_{fb} (V vs NHE)

TiO_2	-0.30	-0.06
Mg-TiO_2-3	-0.57	-0.33
Ca-TiO_2-0.1	-0.56	-0.32
Sr-TiO_2-0.3	-0.58	-0.34
Ba-TiO_2-5	-0.60	-0.36