Supporting Information

The synthesis and properties of bifunctional and intelligent Fe$_3$O$_4$@Titanium oxide core/shell nanoparticles

Yichao Yin[1], Chenjie Liu[1], Baoxiang Wang[1, 2,*], Shoushan Yu[1], Kezheng Chen[1, *]

(1. College of Materials Science and Engineering,

Qingdao University of Science and Technology, Qingdao 266042, China

2. State Key Laboratory of Polymer Materials Engineering, Sichuan University,

Chengdu 610065, China)

*To whom correspondence should be addressed. Tel: 86-532-84022509.

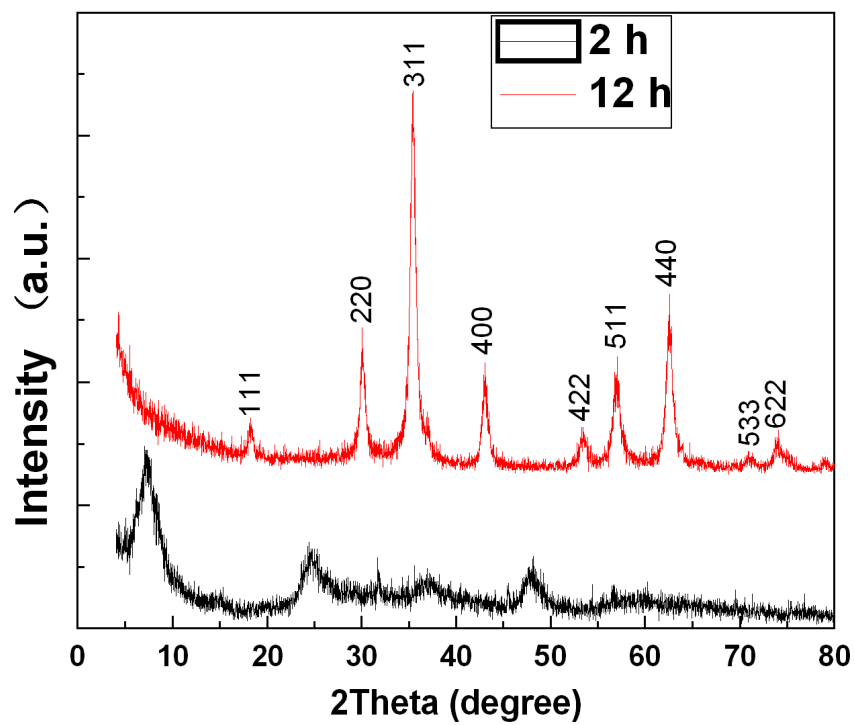Fax: 86-532-84022509.　E-Mail: bxwang@qust.edu.cn；kchen@qust.edu.cn.
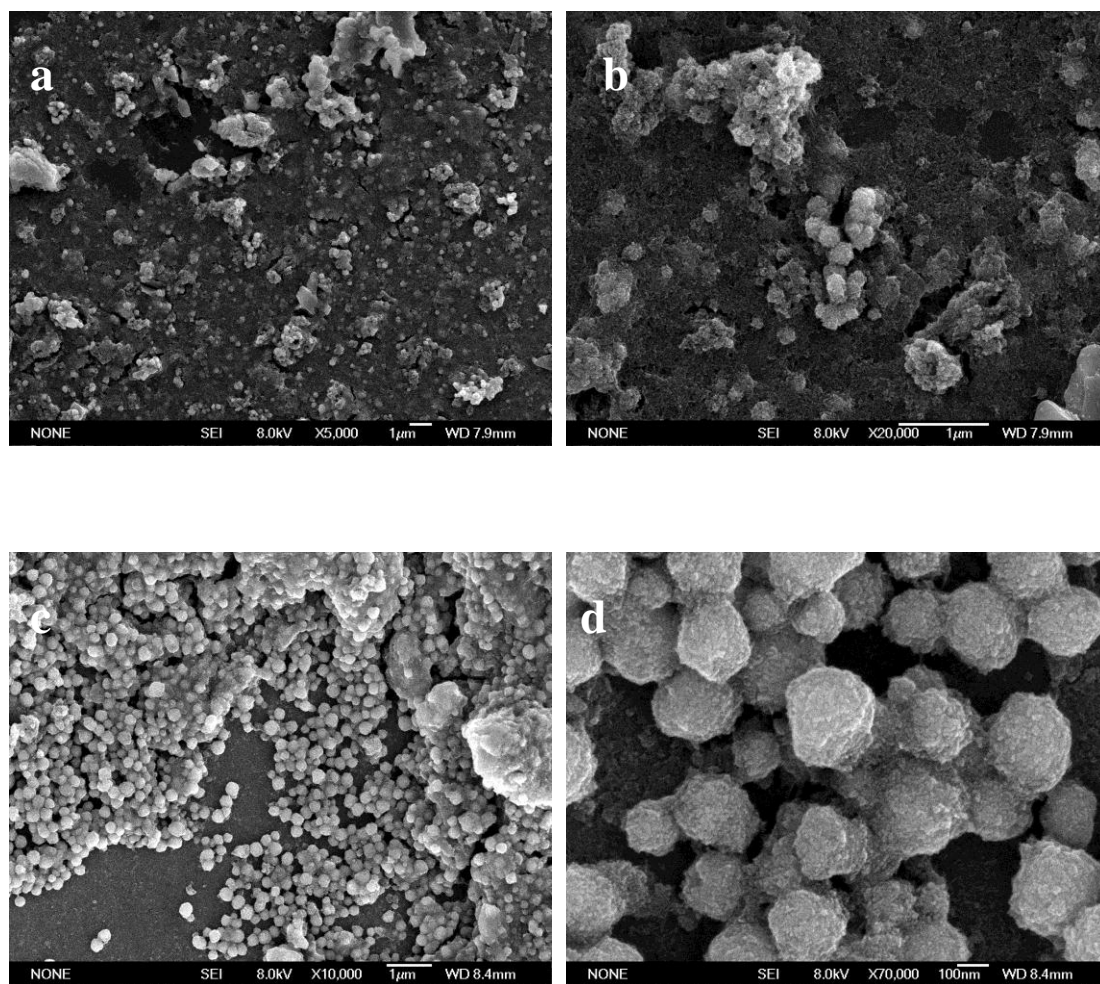
Figure S1 XRD patterns of as-obtained Fe$_3$O$_4$ particles

Fig.S2 The SEM images of Fe$_3$O$_4$/TiO$_2$ obtained via 12h solvothermal method 1 a) b) Ti／Fe =63%; c) d) Ti／Fe =38%. Other conditions are kept unchanged.
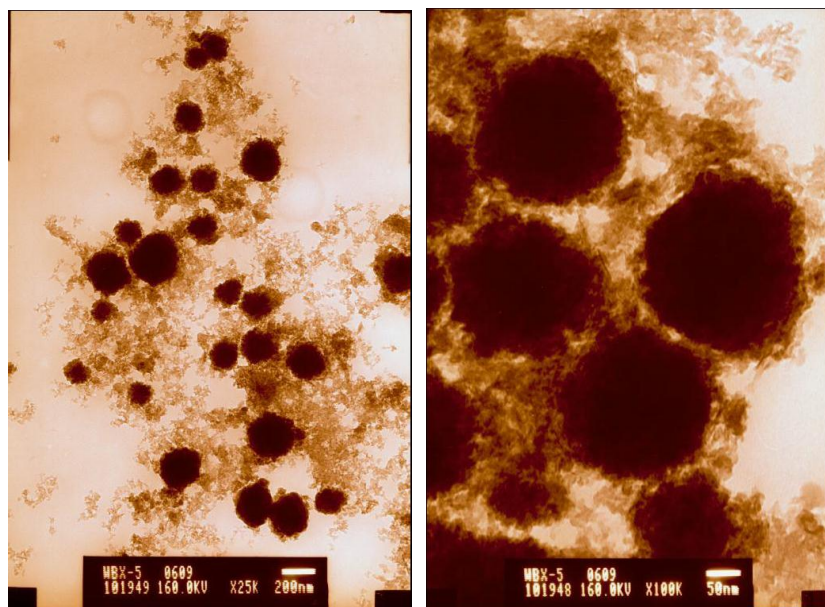
Fig.S3 The TEM photos of $Fe_3O_4@TiO_2$ (Ti／Fe =38%)obtained via 12h solvothermal method
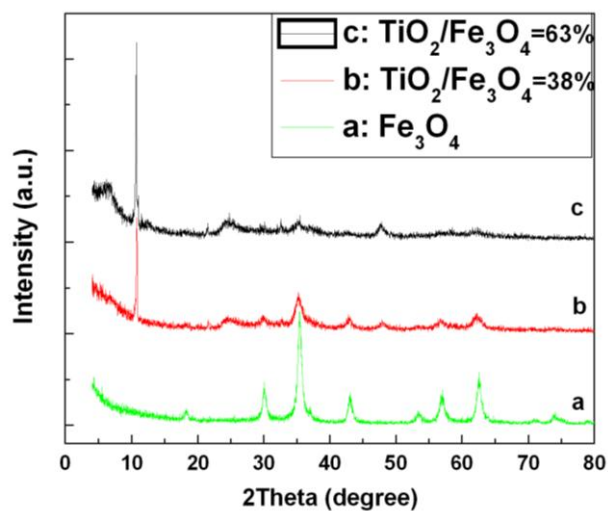
Fig.S4 XRD patterns of Fe_3O_4@TiO_2 composite with different Ti / Fe ratio via 12h solvothermal treatment: a) pure Fe_3O_4 b) Fe_3O_4@TiO_2 composite (Ti / Fe =38%) c) Fe_3O_4@TiO_2 composite (Ti / Fe=63%)