

**Insight into the optical, color, photoluminescence properties,  
and photocatalytic activity of the N-O and C-O functional  
groups decorating spinel type magnesium aluminate**

Shifa Wang<sup>a)\*</sup>, Huajing Gao,<sup>b,c)</sup> Yong Wei<sup>a)</sup>, Yanwu Li<sup>a)</sup>, Xiaohong Yang<sup>d)</sup>, Leiming  
Fang<sup>e)</sup>, Li Lei<sup>f)</sup>

<sup>a)</sup>School of Electronic and Information Engineering, Chongqing Three Gorges  
University, Chongqing, Wanzhou, 404000, China

\*e-mail: wangshifa2006@yeah.net

<sup>b)</sup> State Key Laboratory of Advanced Processing and Recycling of Non-ferrous Metals,  
Lanzhou University of Technology, Lanzhou 730050, China

<sup>c)</sup> School of Science, Lanzhou University of Technology, Lanzhou 730050, China

<sup>d)</sup> Bowen College, Lanzhou Jiaotong University, Lanzhou 730101, China

<sup>e)</sup> Institute of Nuclear Physics and Chemistry, China Academy of Engineering Physics,  
Sichuan, Mianyang, 621900, China

<sup>f)</sup> Institute of Atomic and Molecular Physics, Sichuan University, 610065, Chengdu,  
China

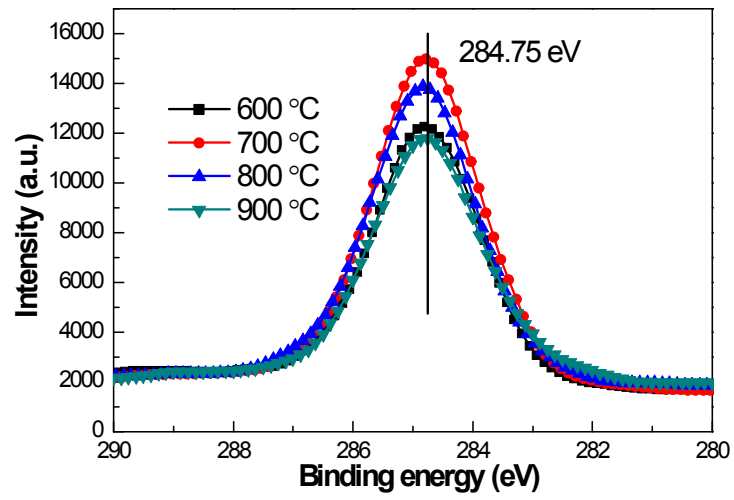


Figure S1 C1s high-resolution XPS spectra of the MgAl<sub>2</sub>O<sub>4</sub> xerogel powders calcined at different temperatures.