

Supplementary

Oxide modified Al for removal of methyl orange and methyl blue in aqueous solution

Song Xie^{a,b}, Yang Yang^{a,b}, Wei-Zhuo Gai^c, Zhen-Yan Deng^{a,b,d,*}

^a*Energy Materials & Physics Group, Department of Physics, Shanghai University, Shanghai 200444, China*

^b*Institute of Low-Dimensional Carbon and Device Physics, Shanghai University, Shanghai 200444, China*

^c*College of Physics and Electronic Information & Henan Key Laboratory of Electromagnetic Transformation and Detection, Luoyang Normal University, Luoyang 471934, China*

^d*Shanghai Key Laboratory of High Temperature Superconductors, Shanghai University, 99 Shangda Road, Shanghai 200444, China*

*Corresponding author: E-mail address: zydeng@shu.edu.cn; Tel: +86-21-66134334.

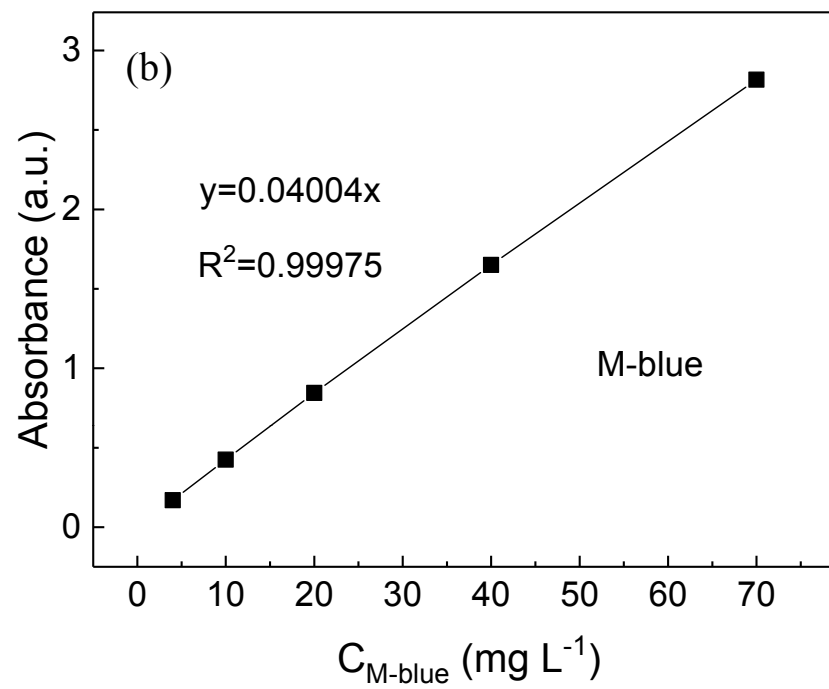
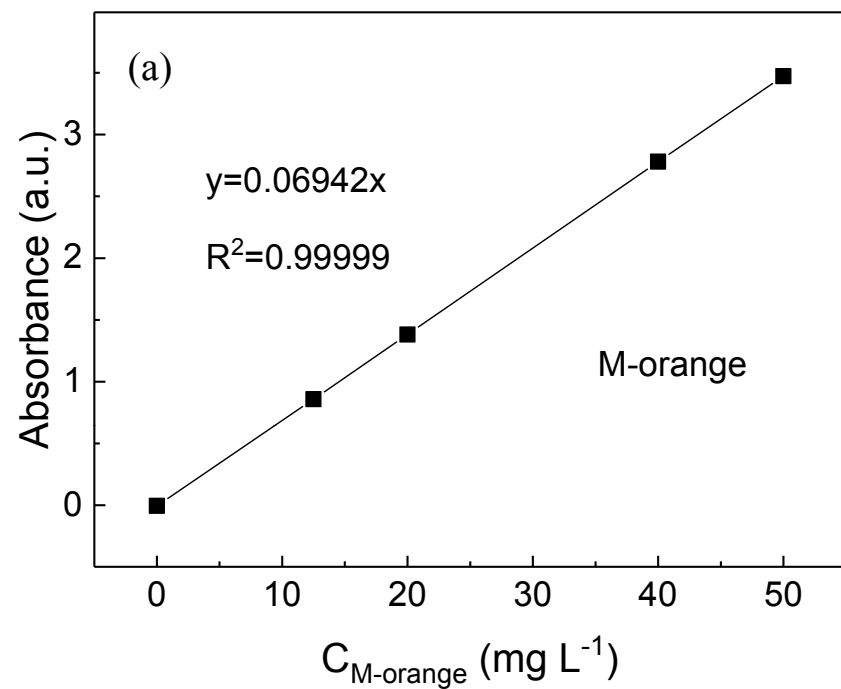


Fig. S1 Linear fitting of the main absorption peak heights of (a) M-orange ($\lambda_{\text{max}} \sim 464 \text{ nm}$) and (b) M-blue ($\lambda_{\text{max}} \sim 314 \text{ nm}$) to their concentrations in aqueous solutions.

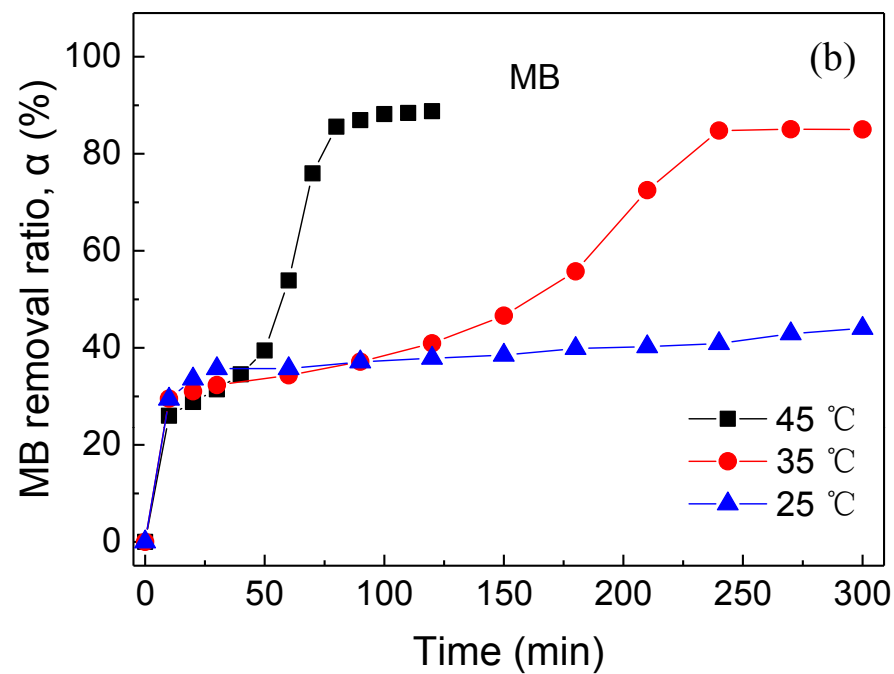
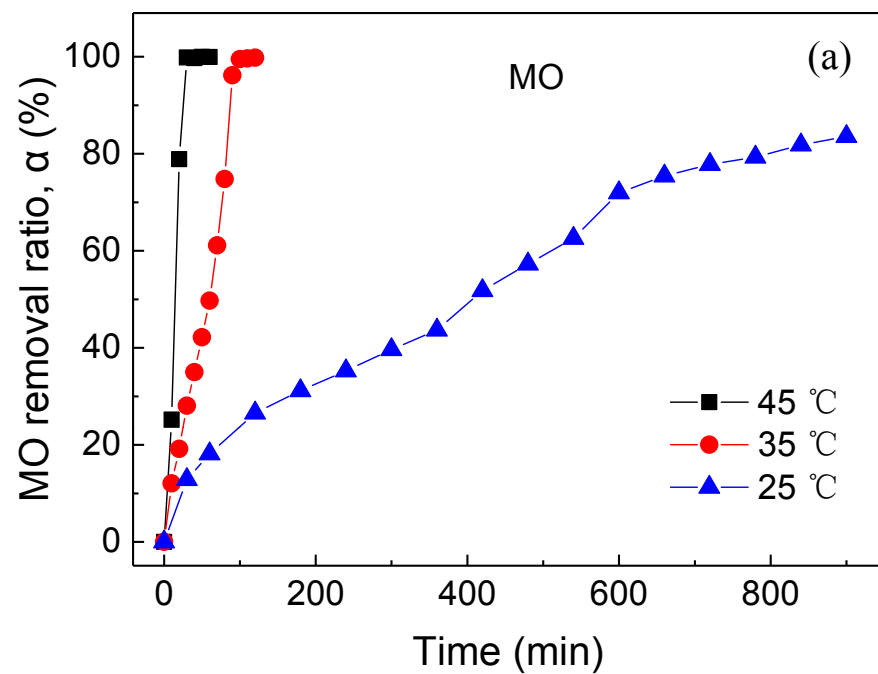


Fig. S2 Dependence of (a) M-orange and (b) M-blue removal in aqueous solutions on reaction time at different temperature using 100 nm Al powder ($C_{M\text{-orange}} = C_{M\text{-blue}} = 20 \text{ mg L}^{-1}$, Al dosage = 1 g L^{-1}).

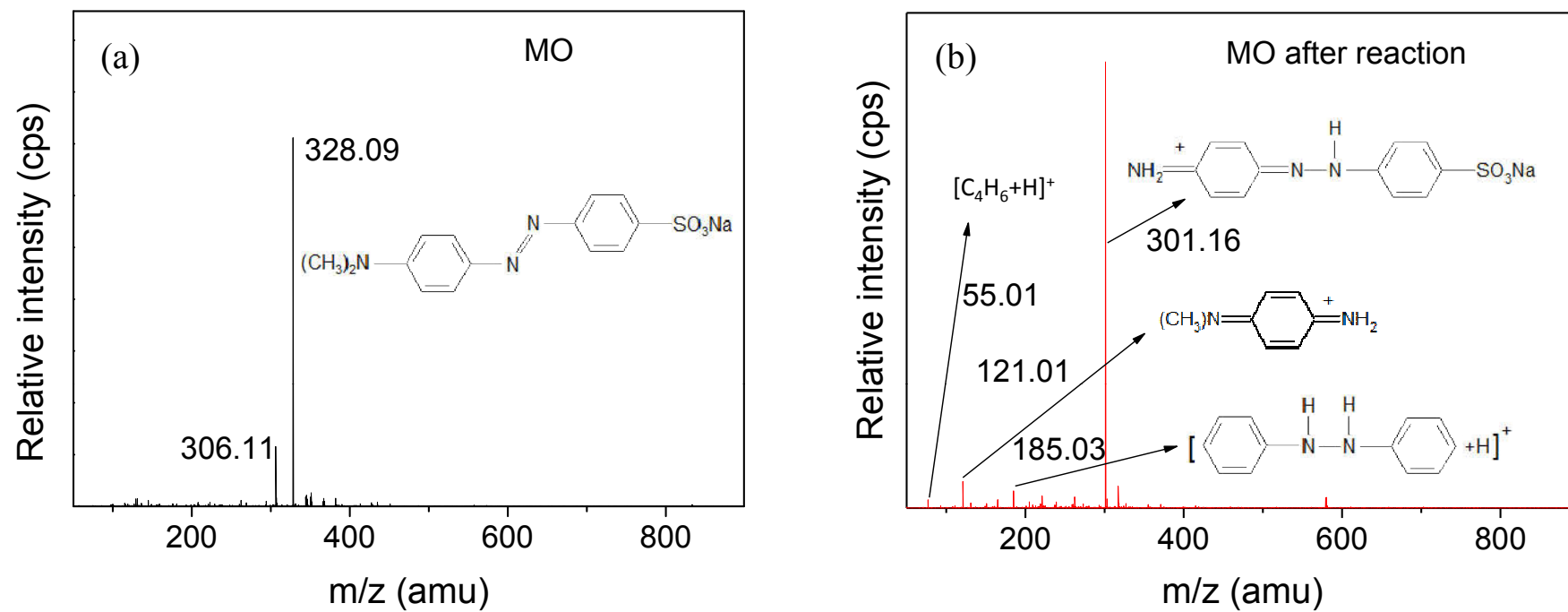


Fig. S3 LC/MS spectra of M-orange solution in the positive ion mode (a) before and (b) after reaction using surface modified 7.29 μm Al powder ($C_{\text{M-orange}} = 20 \text{ mg L}^{-1}$, Al dosage = 1 g L^{-1} , $T = 45 \text{ }^\circ\text{C}$).

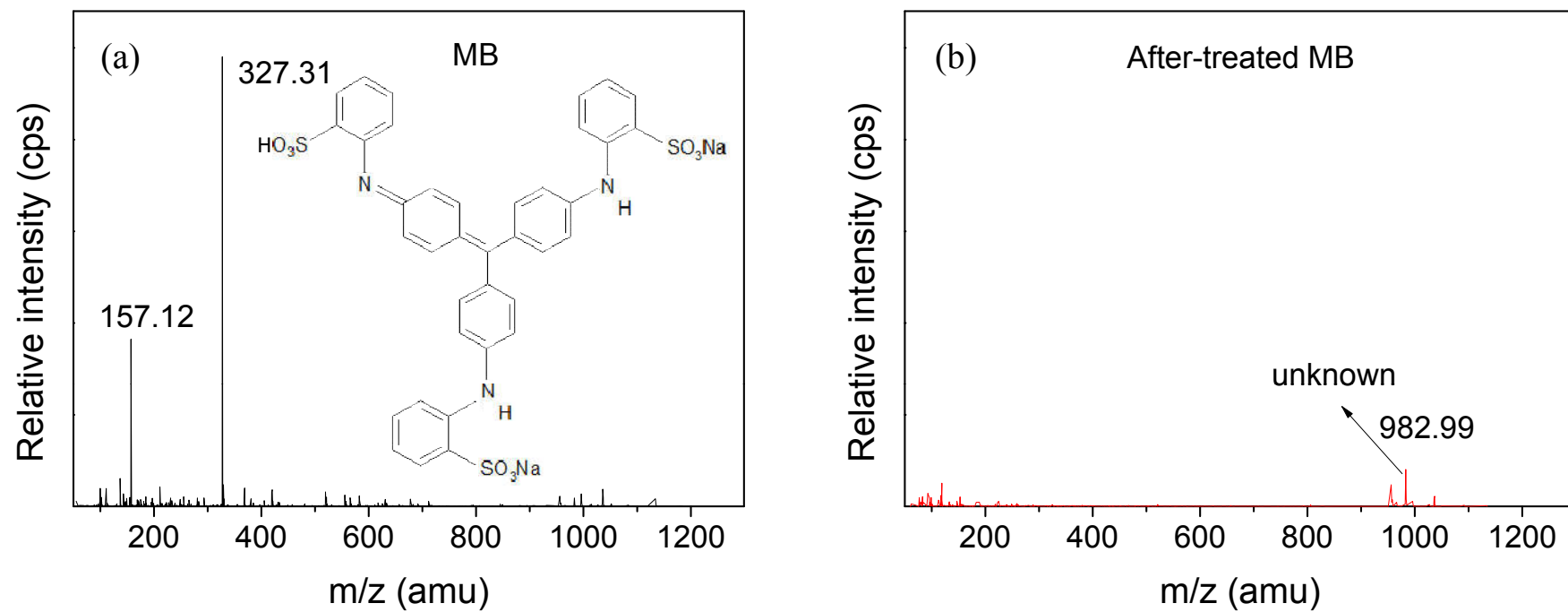


Fig. S4 LC/MS spectra of M-blue solution in the negative ion mode (a) before and (b) after reaction using surface modified 7.29 μm Al powder ($C_{\text{M-blue}} = 20 \text{ mg L}^{-1}$, Al dosage = 1 g L^{-1} , $T = 45 \text{ }^\circ\text{C}$).

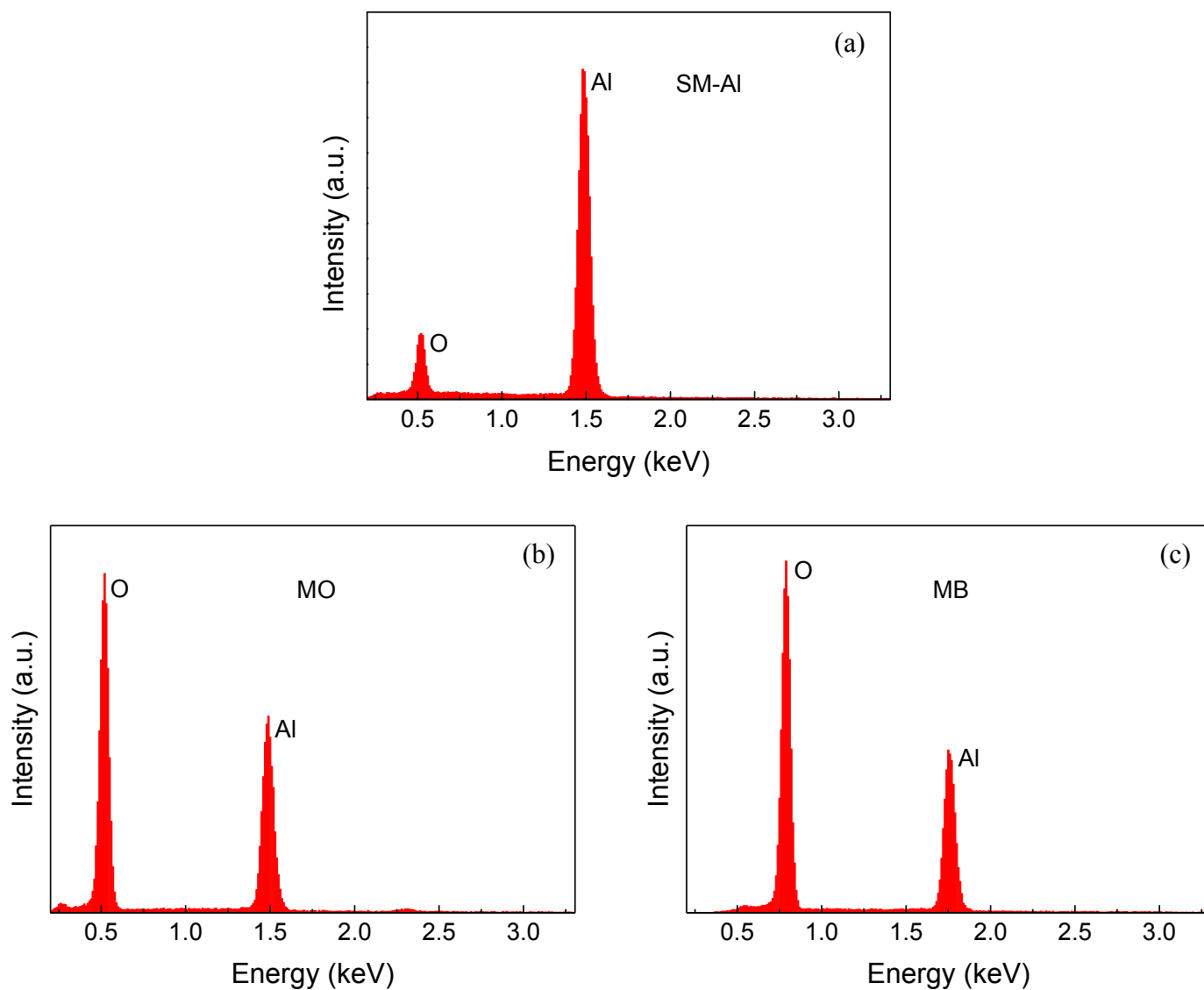


Fig. S5. EDS spectra of (a) surface modified 7.29 μm Al powder, that in (a) after reaction with MO (b) or MB (c) in aqueous solutions ($C_{\text{M-orange}} = C_{\text{M-blue}} = 20 \text{ mg L}^{-1}$, Al dosage = 1 g L^{-1} , $T = 45 \text{ }^\circ\text{C}$).