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New insights on the relationship between the photocatalytic activity and TiO_2-GR Composites

Yanyan Zhu[a, b‡], *Yajun Wang*[c ‡], *Wenqing Yao*[a], *Ruilong Zong*[a], *and Yongfa Zhu*[a,*]

*Corresponding author: Yongfa Zhu; Address: Department of Chemistry, Beijing Key Laboratory for Analytical Methods and Instrumentation, Tsinghua University, Beijing, 100084, P.R. China; Fax: (+86)10-6278-7601; Tel.: (+86) 10-6278-7601; Email: zhuyf@mail.tsinghua.edu.cn

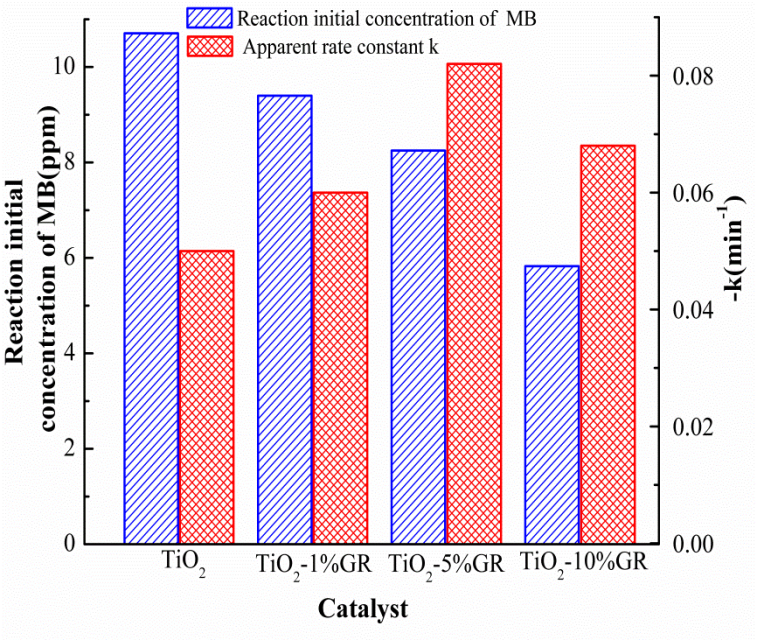

Fig.S1 The adsorption and photocatalytic oxidative degradation performance of MB over TiO_2 and TiO_2-GR composites under 11.2 ppm MB initial concentration (The suspensions were stirred in the dark for 4 h to get adsorption-desorption equilibrium, the light intensity of 254 nm UV light is 0.9 $mW \cdot cm^{-2}$).

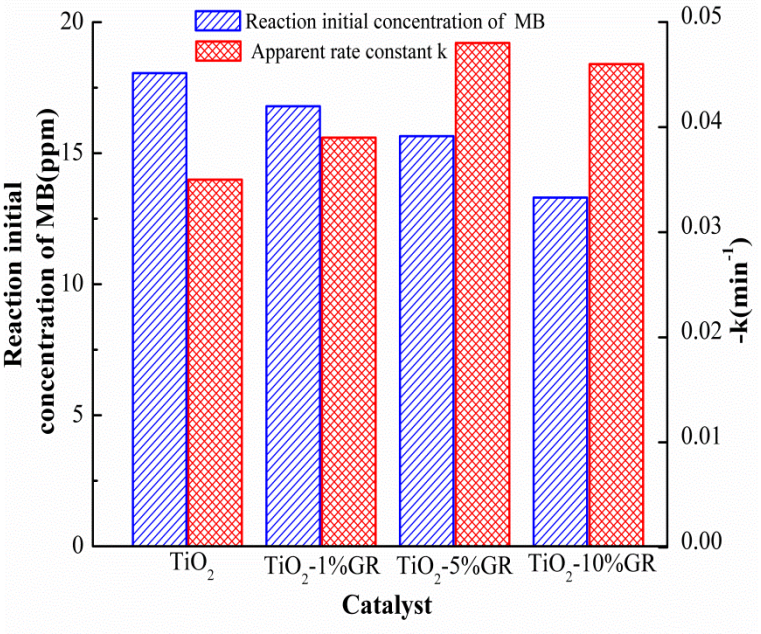

Fig.S2 The adsorption and photocatalytic oxidative degradation performance of MB over TiO_2 and TiO_2-GR composites under 18.7 ppm MB initial concentration (The suspensions were stirred in the dark for 4 h to get adsorption-desorption equilibrium, the light intensity of 254 nm UV light is 0.9 $mW \cdot cm^{-2}$).

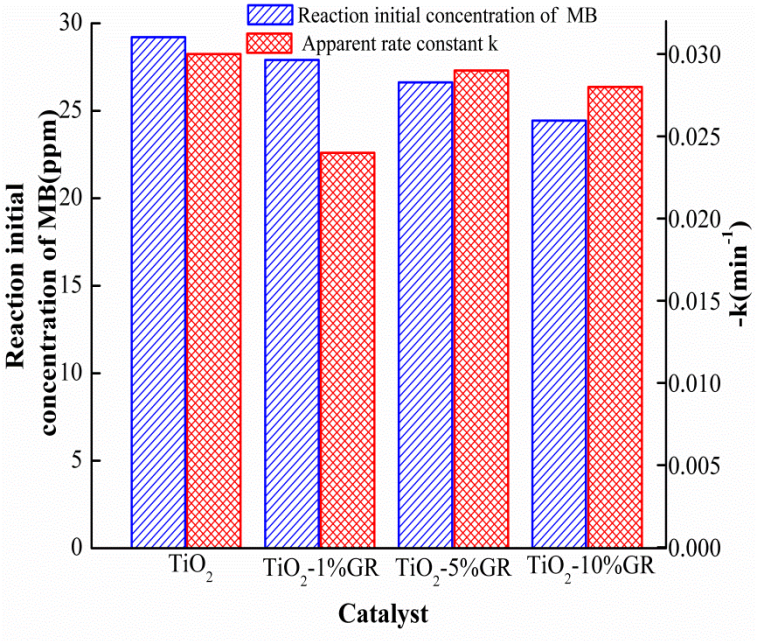

Fig.S3 The adsorption and photocatalytic oxidative degradation performance of MB over TiO_2 and TiO_2-GR composites under 29.9 ppm MB initial concentration (The suspensions were stirred in the dark for 4 h to get absorption-desorption equilibrium, the light intensity of 254 nm UV light is 0.9 $mW \cdot cm^{-2}$).

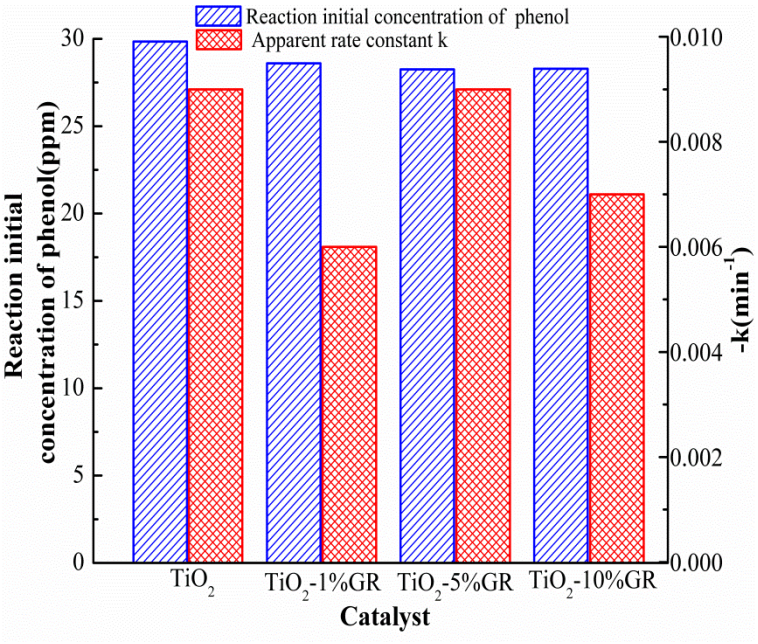

Fig.S4 The adsorption and photocatalytic oxidative degradation performance of phenol over TiO_2 and TiO_2-GR composites under 30.0 ppm phenol initial concentration (The suspensions were stirred in the dark for 4 h to get adsorption-desorption equilibrium, the light intensity of 254 nm UV light is 0.9 $mW \cdot cm^{-2}$).

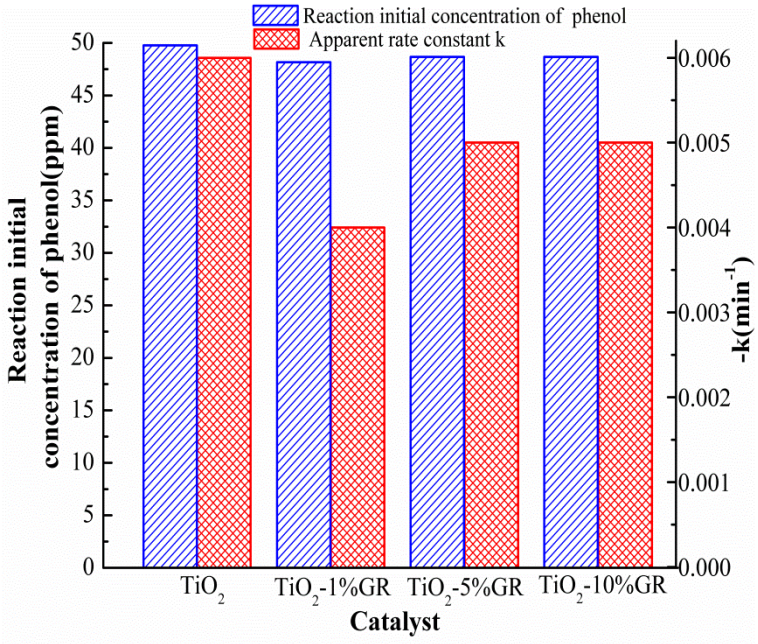

Fig.S5 The adsorption and photocatalytic oxidative degradation performance of phenol over TiO_2 and TiO_2-GR composites under 50.0 ppm phenol initial concentration (The suspensions were stirred in the dark for 4 h to get adsorption-desorption equilibrium, the light intensity of 254 nm UV light is 0.9 $mW \cdot cm^{-2}$).

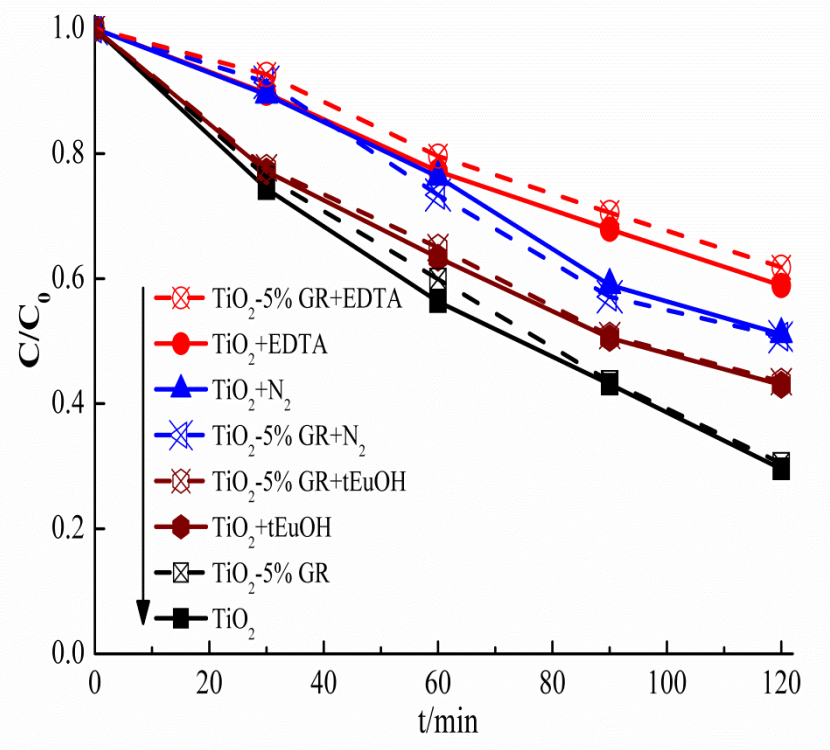

Fig.S6 The plots of oxidative species trapping in the system of photodegradation phenol over TiO_2 and TiO_2-GR composites (phenol initial concentration =10 ppm, λ= 254 nm)

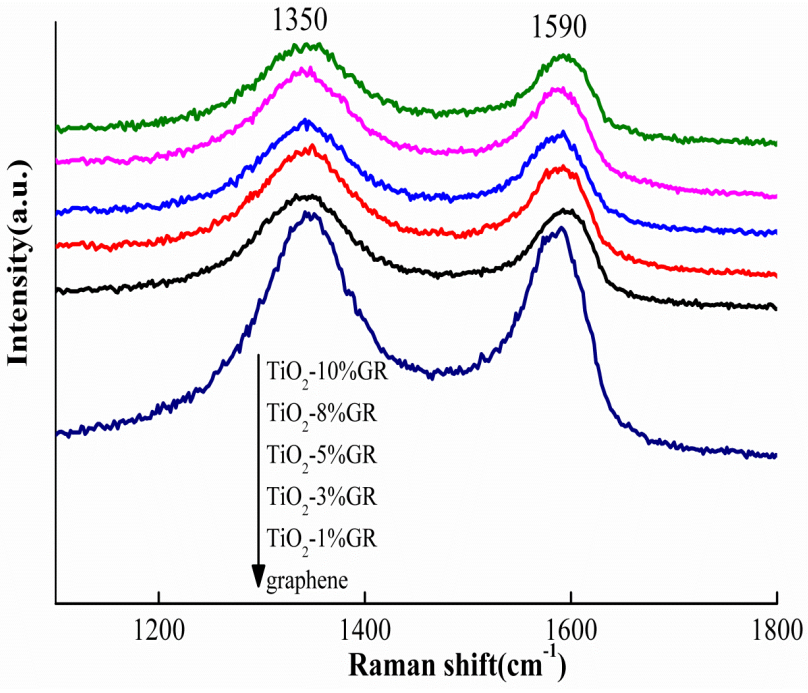

Fig.S7 Raman spectra of graphene and TiO_2-GR composites