

Supporting Information

Bisulfate Induced Chemiluminescence of g-C₃N₄ Nanosheets and Enhanced by Metal Ions

Yongzan Zheng, Xiangnan Dou, Haifang Li, and Jin-Ming Lin*

Beijing Key Laboratory of Microanalytical Methods and Instrumentation, Department of Chemistry, Tsinghua University,
Beijing 100084, People's Republic of China

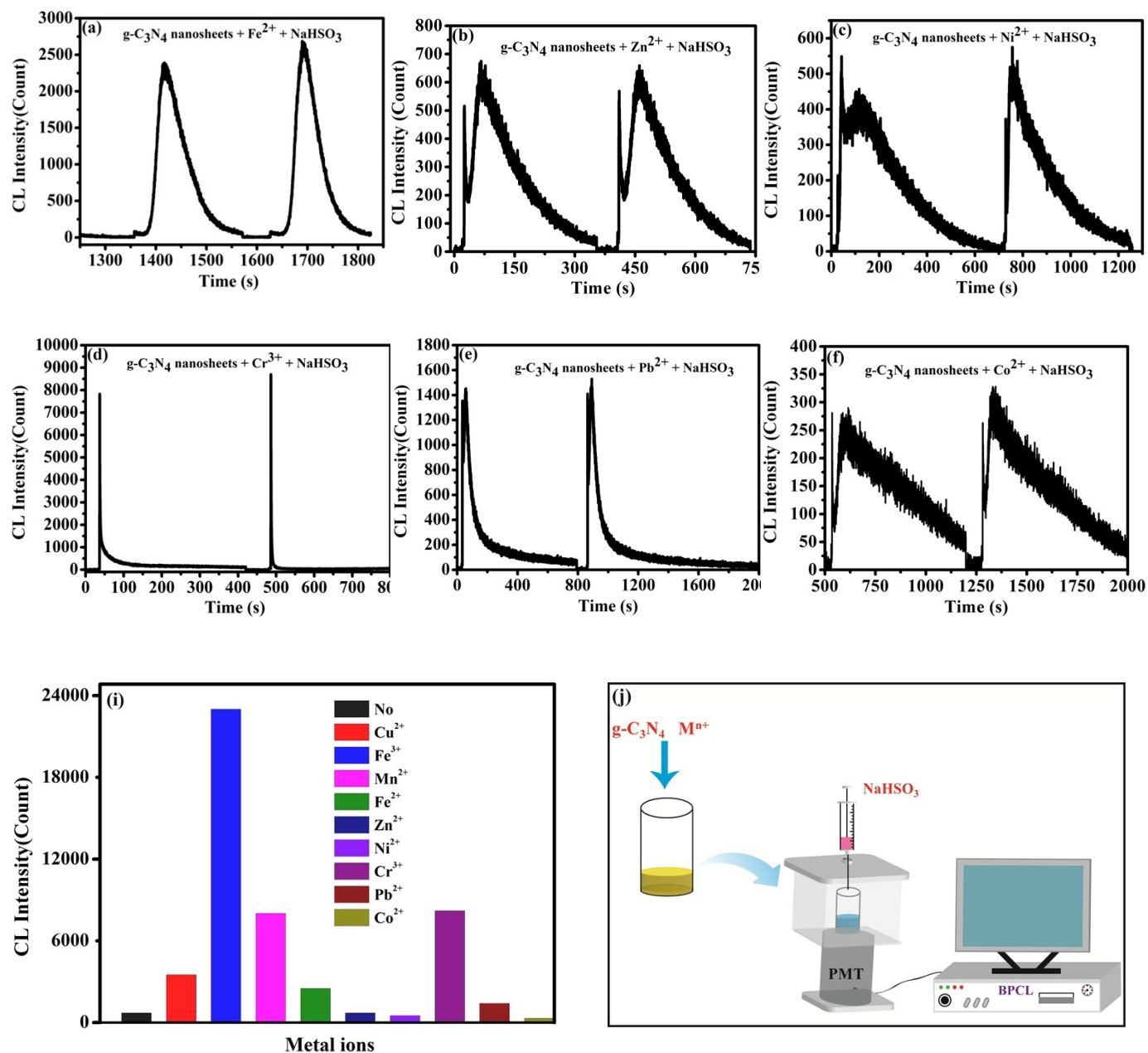


Fig. S1 Kinetic curves of CL of (a) g-C₃N₄ nanosheets-Fe²⁺-NaHSO₃ system, (b) g-C₃N₄ nanosheets-Zn²⁺-NaHSO₃ system, (c) g-C₃N₄ nanosheets-Ni²⁺-NaHSO₃ system, (d) g-C₃N₄ nanosheets-Cr³⁺-NaHSO₃ system, (e) g-C₃N₄ nanosheets-Pb²⁺-NaHSO₃ system, (f) g-C₃N₄ nanosheets-Co²⁺-NaHSO₃ system, when 50 μ L of 10⁻³ M NaHSO₃ was injected into the mixture of 50 μ L of 10⁻³ M Mⁿ⁺ (metal ions) and 50 μ L 2.5 μ g/ μ L g-C₃N₄ nanosheets. (i) Compare the CL intensity of g-C₃N₄ nanosheets- NaHSO₃ system with different metal ions. (j) Schematic diagram of the bath method CL detection system.

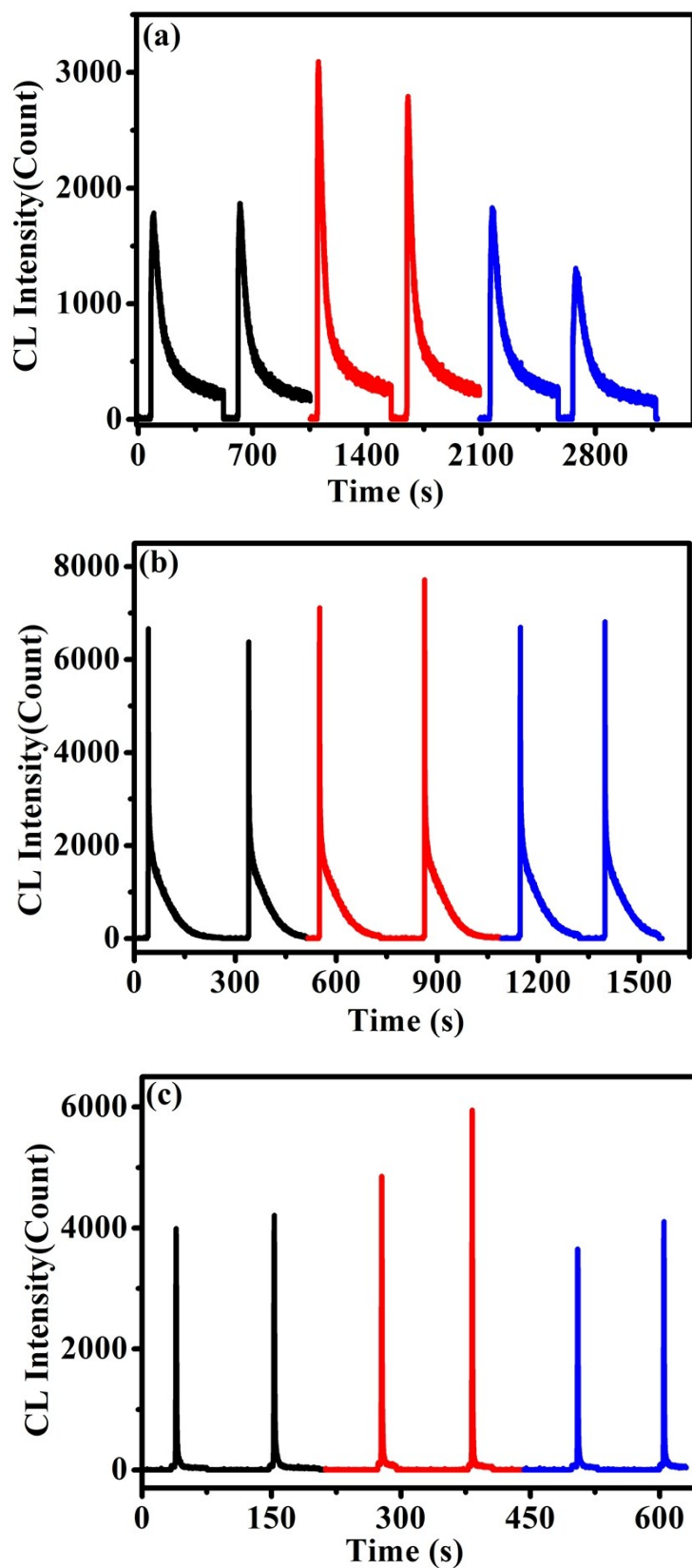


Fig. S2 The kinetic curves of g-C₃N₄nanosheets-Mⁿ⁺-NaHSO₃ CL systems: (a) Cu²⁺, (b) Fe³⁺, (c) Mn²⁺, the CL the solution was bubbled with O₂ (red) or N₂ (blue) for 20 min before injecting. The concentration of g-C₃N₄ nanosheets, Mⁿ⁺ and NaHSO₃ were 2.5 μg/μl, 10⁻³ M and 10⁻³ M, respectively.

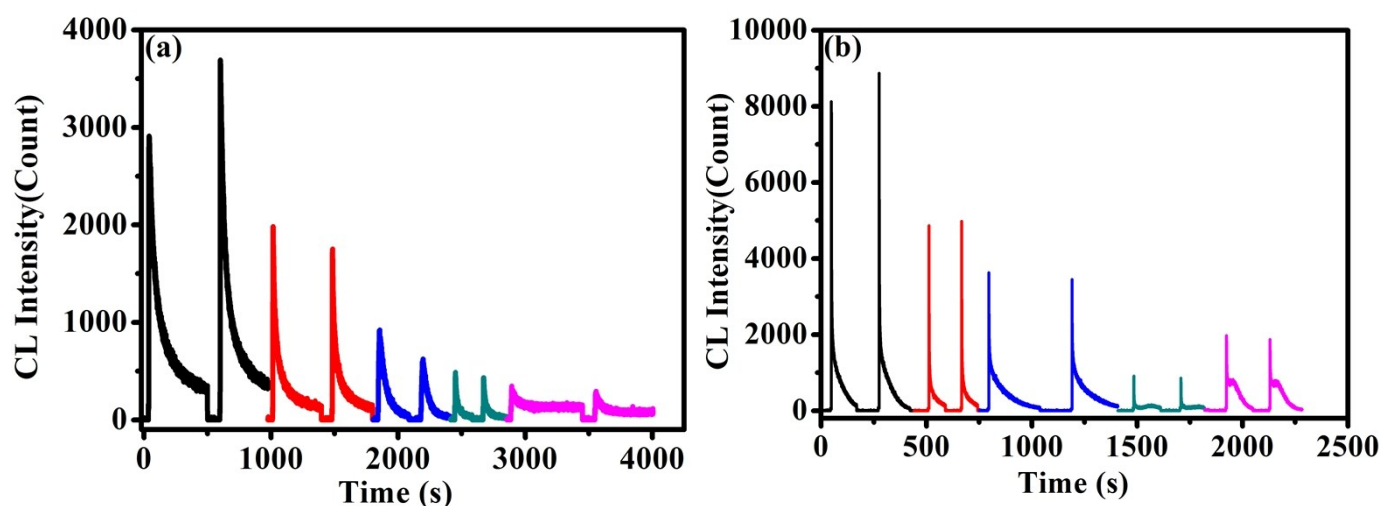


Fig. S3 The Kinetic curves of (a) g-C₃N₄ nanosheets-Cu²⁺-NaHSO₃ and (b) g-C₃N₄ nanosheets-Fe³⁺-NaHSO₃ CL systems with different radical scavengers: NBT (red), NaN₃ (blue), thiourea (green) and ascorbic acid (pink).

Table S2 Effects of radical scavengers on g-C₃N₄ nanosheets-Cu²⁺-NaHSO₃ and g-C₃N₄ nanosheets-Fe³⁺-NaHSO₃ CL systems

Radical scavengers	Concentration (M)	CL intensity of g-C ₃ N ₄ nanosheets-Cu ²⁺ -NaHSO ₃ (Count)	CL intensity of g-C ₃ N ₄ nanosheets-Fe ³⁺ -NaHSO ₃ (Count)
H ₂ O		3200	8200
NBT	1.0×10 ⁻³	1800	5000
NaN ₃	1.0×10 ⁻²	900	3800
Thiourea	1.0×10 ⁻³	500	1000
Ascorbic acid	1.0×10 ⁻³	400	1800

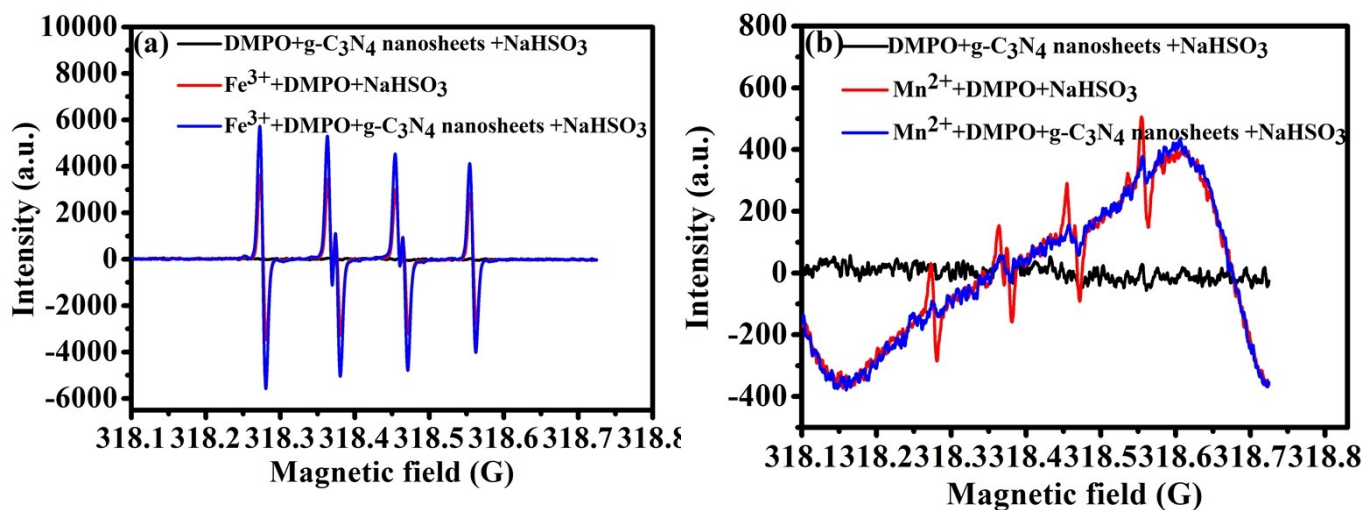


Fig. S4 ESR spectra of $\cdot\text{SO}_3^-$ radicals. (a) $\cdot\text{SO}_3^-$ radicals increased when g-C₃N₄ nanosheets are added into the solution of and NaHSO₃ and Fe³⁺. (b) $\cdot\text{SO}_3^-$ radicals increased when g-C₃N₄ nanosheets are added into the solution of and NaHSO₃ and Mn²⁺.

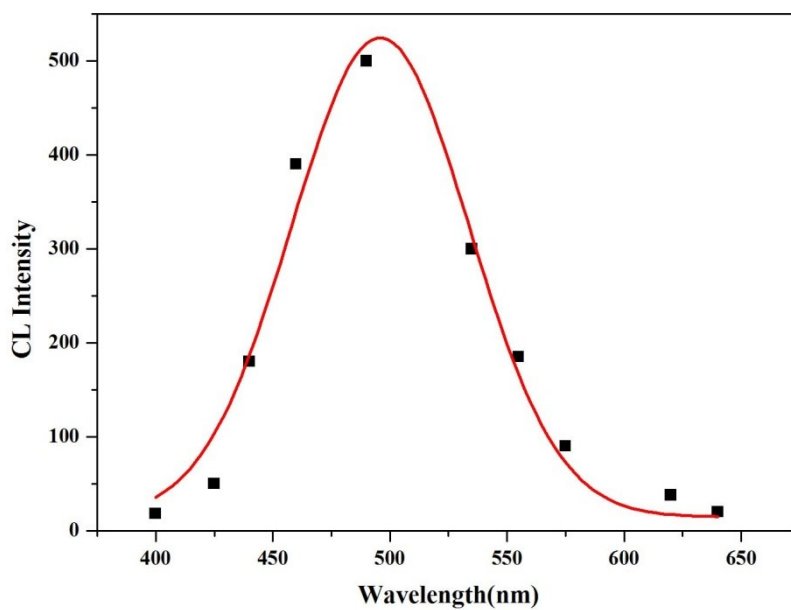


Fig. S5 CL spectra of g-C₃N₄ nanosheets-Cu²⁺-NaHSO₃ system.