

## Supporting Information

### **Electrochemiluminescence Resonance Energy Transfer Based on Ru(phen)<sub>3</sub><sup>2+</sup>-Doped Silica Nanoparticles and Its Application in "Turn-on" Detection of Ozone**

Wenjing Qi,<sup>a,b</sup> Di Wu,<sup>c</sup> Jianming Zhao,<sup>a,b</sup> Zhongyuan Liu,<sup>a</sup> Wei Zhang,<sup>a</sup> Ling Zhang,<sup>a,b</sup>  
Guobao Xu<sup>\*,a</sup>

<sup>a</sup> State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, Jilin 130022, PR China;

<sup>b</sup> Graduate University of the Chinese Academy of Sciences, PR China;

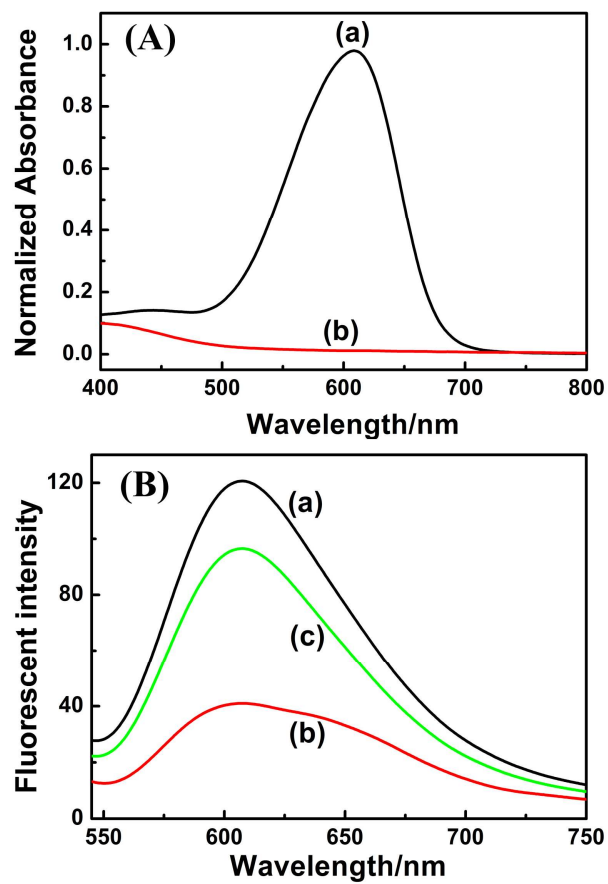
<sup>c</sup> Department of Chemistry and Chemical Engineering, Sichuan University of Arts and Science, Sichuan Key Laboratory of Characteristic Plant Development Research, Dazhou, Sichuan 635000, PR China.

## **Table of Contents**

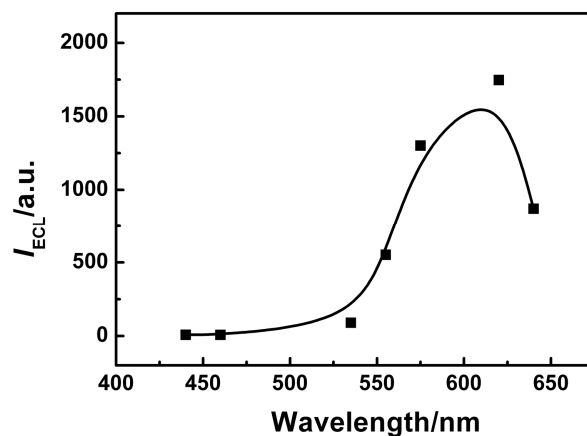
**Figure S1.** Normalized UV-Vis absorption and fluorescence spectra of IDS reacting with ozone.

**Figure S2.** ECL spectrum of RuSiNPs in the presence of TPA obtained from ECL intensity using different wavelengths of optical filters.

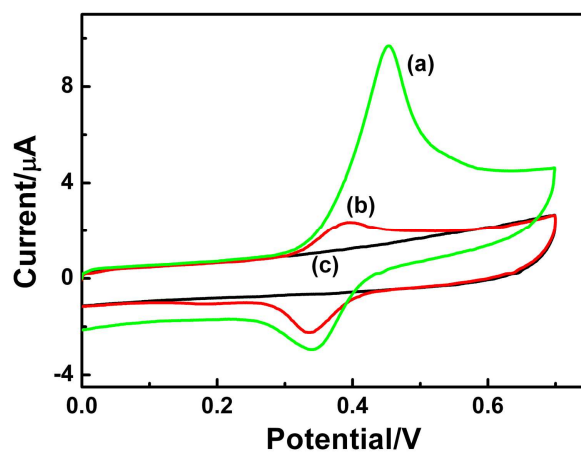
**Figure S3.** Cyclic voltammogram (a) in indigo carmine solution at glassy carbon electrode and in buffer solution at glassy carbon electrode (b) after and (c) before immersing it in indigo carmine solution for 5 min.



**Figure S1.** (A): Normalized UV-Vis absorption spectra of IDS before (a) and after (b) it reacting with ozone; (B): Fluorescence of RuSiNPs (a) and RuSiNPs reacting with IDS in the absence (b) and presence of ozone (c).



**Figure S2.** ECL spectrum of RuSiNPs in the presence of TPA. The spectrum was obtained by measuring ECL intensity with different optical filters (440 nm, 460 nm, 535 nm, 555 nm, 575 nm, 620 nm, 640 nm).  $c(\text{RuSiNPs})$ : 1.2  $\mu\text{M}$ ;  $c(\text{TPA})$ : 18.1 mM; Scan rate: 0.1 V/s; Photomultiplier tube voltage: 1100V.



**Figure S3.** (a) Cyclic voltammogram at glassy carbon electrode in 0.2 M pH 7.4 phosphate buffer solution containing 0.5 mM indigo carmine, (b) cyclic voltammogram in 0.2 M pH 7.4 phosphate buffer solution at glassy carbon electrode after immersing it in 0.5 mM indigo carmine solution for 5 min, and (c) cyclic voltammogram at glassy carbon electrode in 0.2 M pH 7.4 phosphate buffer solution. Scan rate: 0.1 V/s.