

Supporting Information

Identification of radiolytic products of [C₄mim][NTf₂] and their effect on the Sr²⁺ extraction

Yinyong Ao ^a, Jing Peng ^a, Liyong Yuan ^b, Zhenpeng Cui ^a, Cheng Li ^c, Jiuqiang Li ^a and Maolin Zhai

^{a*}

^a Beijing National Laboratory for Molecular Sciences (BNLMS), Department of Applied Chemistry, College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, China

^b Institute of High Energy Physics, Chinese Academy of Sciences, Beijing 100049, China.

^c Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai 201800, China.

* Corresponding authors: Tel/Fax: 86-10-62753794, E-mail: mlzhai@pku.edu.cn;

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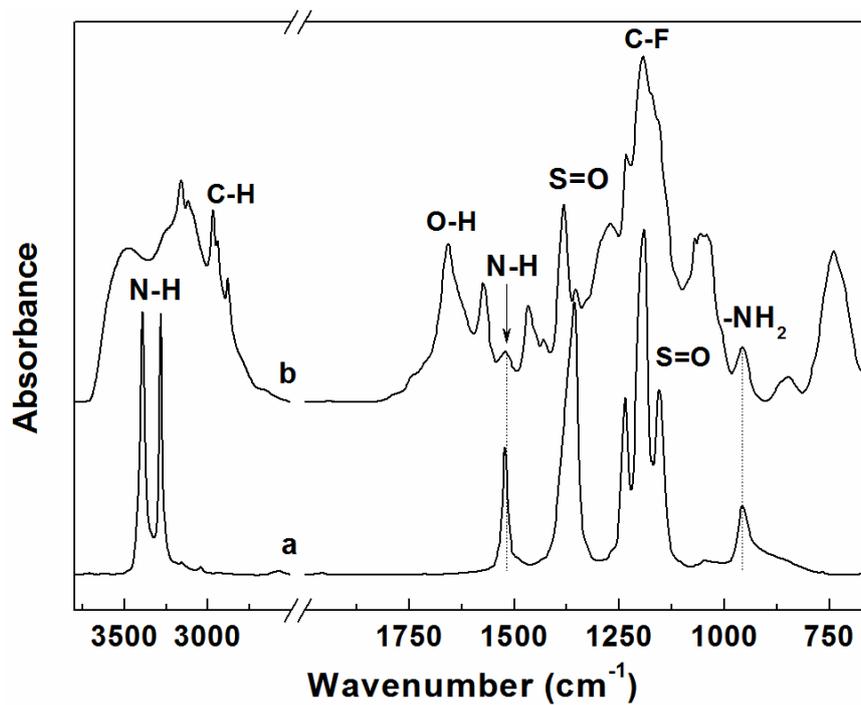


Fig S1 The Micro-FTIR spectra of CF₃SO₂NH₂ (a) and the water-washed phase of irradiated [C₄mim][NTf₂] (b).

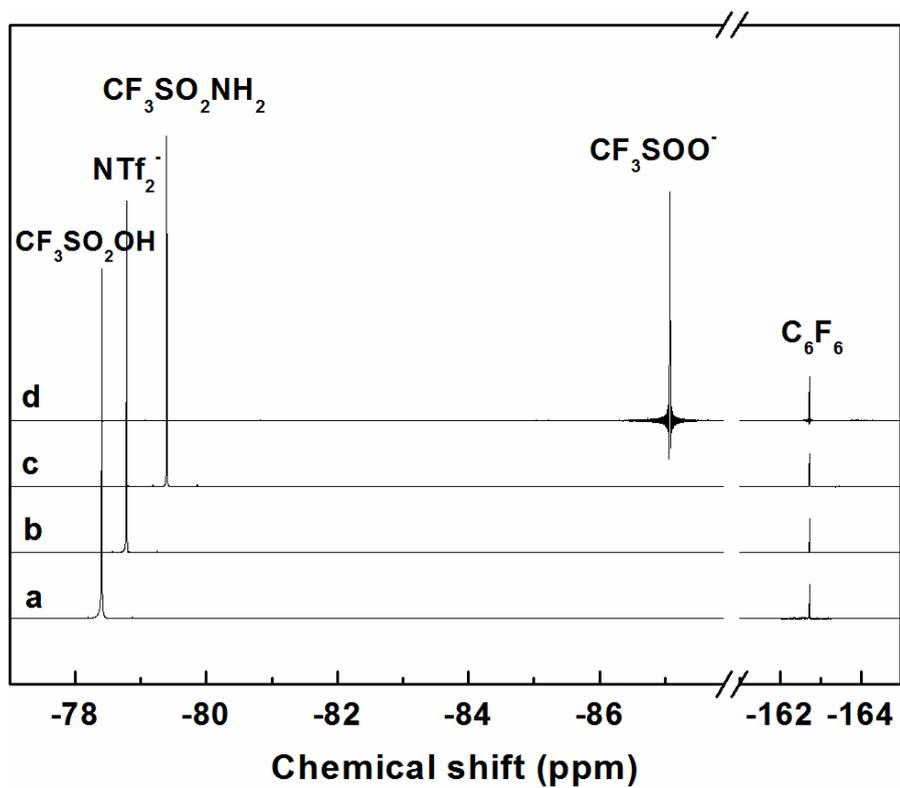


Fig S2 The ^{19}F NMR spectra of $\text{CF}_3\text{SO}_2\text{OH}$, $[\text{C}_4\text{mim}][\text{NTf}_2]$, $\text{CF}_3\text{SO}_2\text{NH}_2$ and CF_3SOONa standard compounds. (a:

$\text{CF}_3\text{SO}_2\text{OH}$, -78.42 ppm; b: $[\text{C}_4\text{mim}][\text{NTf}_2]$, -78.78 ppm; c: $\text{CF}_3\text{SO}_2\text{NH}_2$, -79.36 ppm; d: CF_3SOONa , -78.07 ppm)

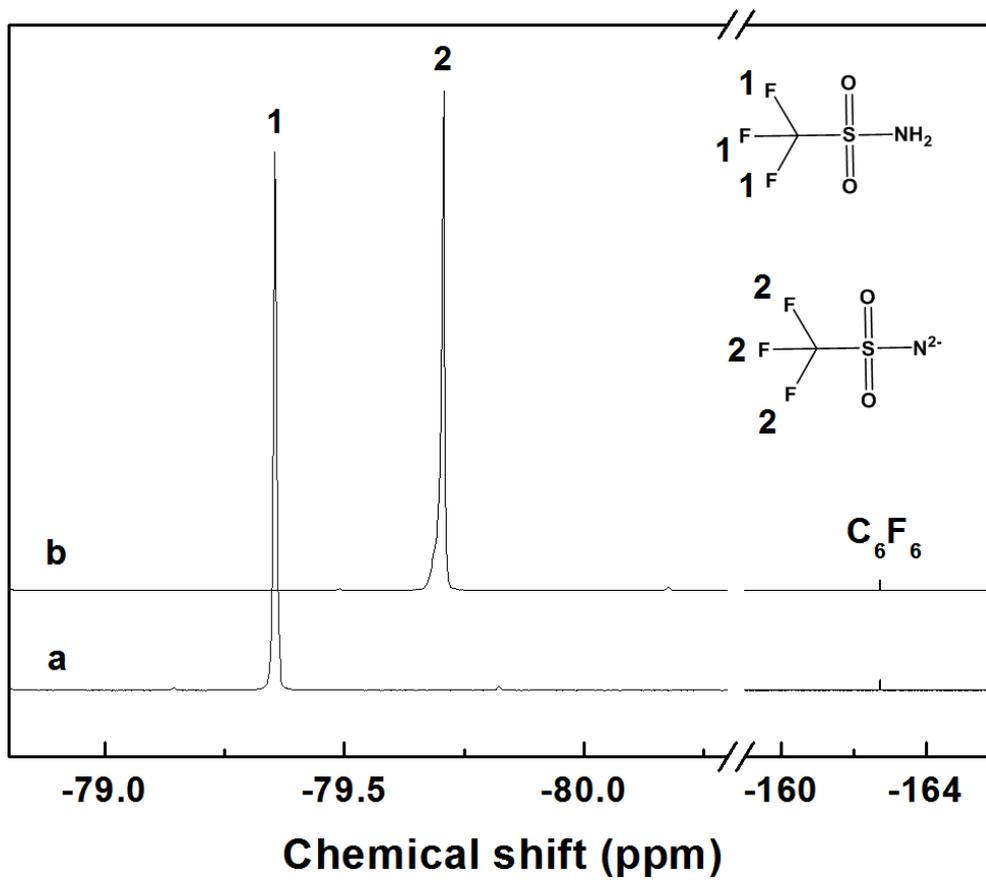


Fig S3 The ^{19}F NMR spectra of $\text{CF}_3\text{SO}_2\text{NH}_2$ at different pH (a: pH ca. 3; b: pH ca. 8).

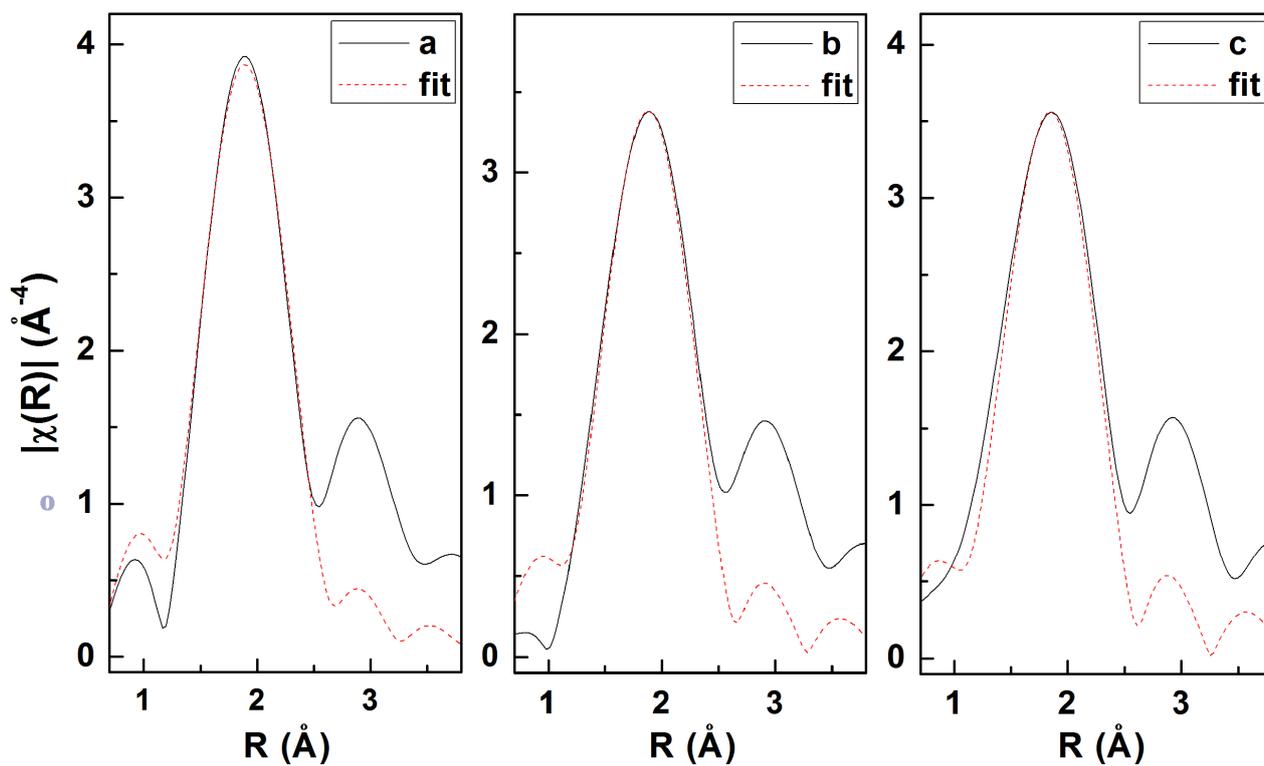


Fig S4 Fourier transform magnitude (—) of the Sr K-edge EXAFS and first shell best fit (- -) of the Sr-crown ether complexes present in $[\text{C}_4\text{mim}][\text{NTf}_2]$ solutions. (a) 0.01 M $\text{Sr}(\text{NO}_3)_2$ (aq) contacted with 0.1 M DCH18C6 in unirradiated $[\text{C}_4\text{mim}][\text{NTf}_2]$, (b) 0.01M $\text{Sr}(\text{NO}_3)_2$ (aq) contacted with 0.1 M DCH18C6 in irradiated $[\text{C}_4\text{mim}][\text{NTf}_2]$ at 550 kGy, (c) 0.01M $\text{Sr}(\text{NO}_3)_2$ (aq) contacted with 0.1 M DCH18C6 in water-washed irradiated $[\text{C}_4\text{mim}][\text{NTf}_2]$.

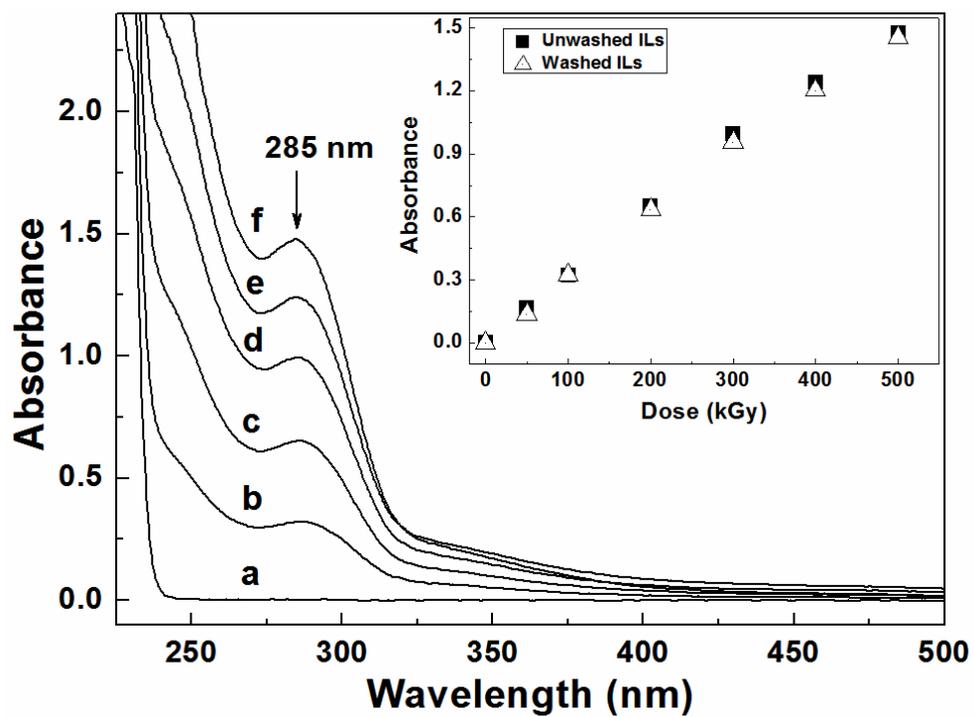


Fig S5 UV-vis spectra of irradiated [C₄mim][NTf₂] and water-washed irradiated [C₄mim][NTf₂] (a – e : 0, 100, 200, 300, 400, 500 kGy). Inset shows the relationship between absorption at 285 nm and doses.