

Supporting Information

The Molecular Origin for the Difficulty in Separation of 5-Hydroxymethylfurfural from Imidazolium Based Ionic Liquids

Huiyong Wang, Shuyan Liu, Yuling Zhao, Hucheng Zhang and Jianji Wang^{*}

Collaborative Innovation Center of Henan Province for Green Manufacturing of Fine Chemicals, School of Chemistry and Chemical Engineering, Key Laboratory of Green Chemical Media and Reactions, Ministry of Education, Henan Normal University, Xinxiang, Henan 453007, P. R. China

Corresponding Author

*Tel.: +86 373 3325805. Fax: +86 373 3329030.

E-mail address: Jwang@htu.cn (J.W).

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Number of Figure: 19

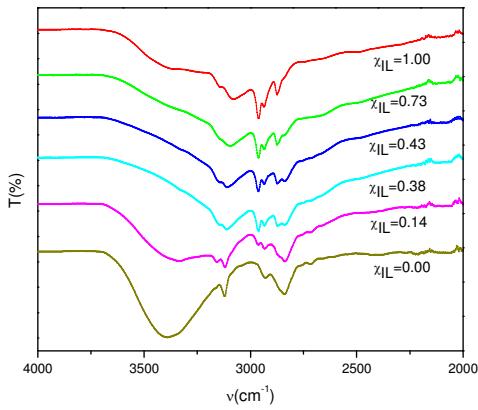


Figure S1. O-H and C-H stretching for [C₄mim][CH₃COO]/5-HMF mixtures as a function of mole fraction of the IL.

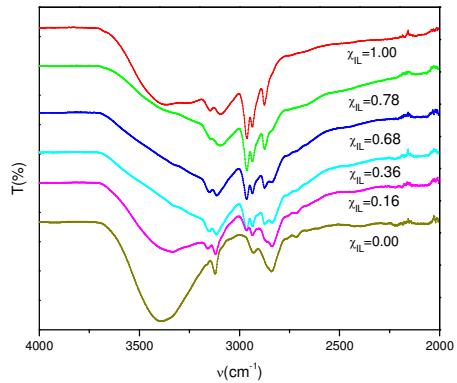


Figure S2. O-H and C-H stretching for [C₄mim][C₂H₅COO]/5-HMF mixtures as a function of mole fraction of the IL.

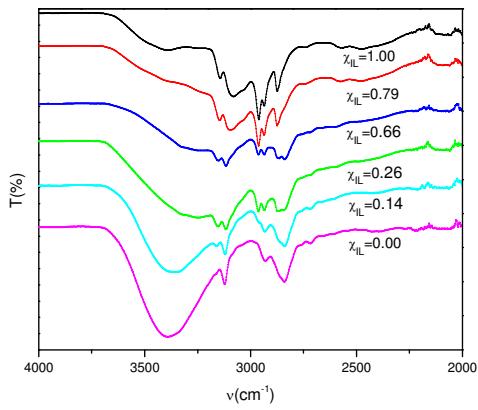


Figure S3. O-H and C-H stretching for [C₄mim][HSO₄]/5-HMF mixtures as a function of mole fraction of the IL.

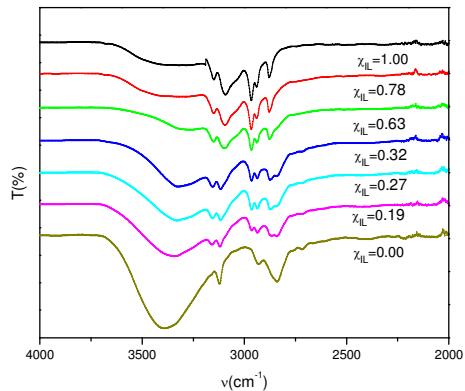


Figure S4. O-H and C-H stretching for [C₄mim][CF₃COO]/5-HMF mixtures as a function of mole fraction of the IL.

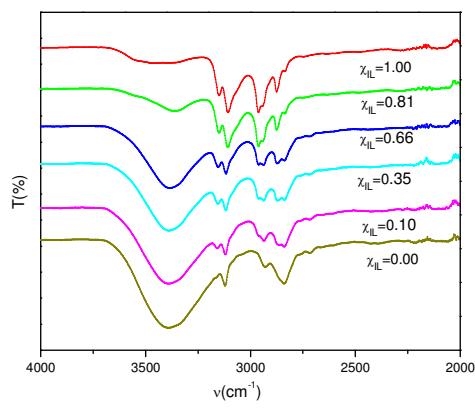


Figure S5. O-H and C-H stretching for $[\text{C}_4\text{mim}][\text{CH}_3\text{OSO}_3]$ /5-HMF mixtures as a function of mole fraction of the IL.

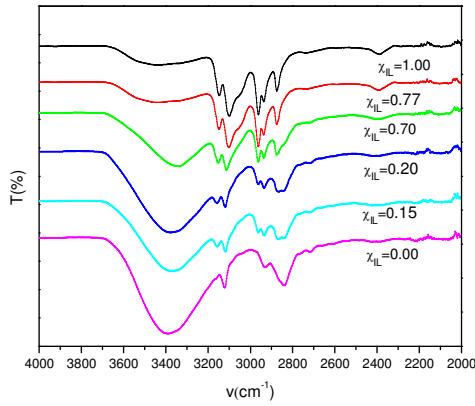


Figure S6. O-H and C-H stretching for $[\text{C}_4\text{mim}][\text{NO}_3]$ /5-HMF mixtures as a function of mole fraction of the IL.

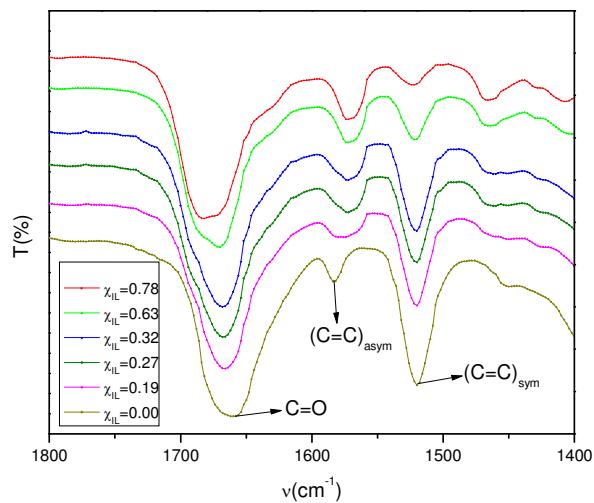


Figure S7. C=O and C=C vibration of 5-HMF in $[C_4\text{mim}][\text{CF}_3\text{COO}]$ /5-HMF mixtures as a function of mole fraction of the IL

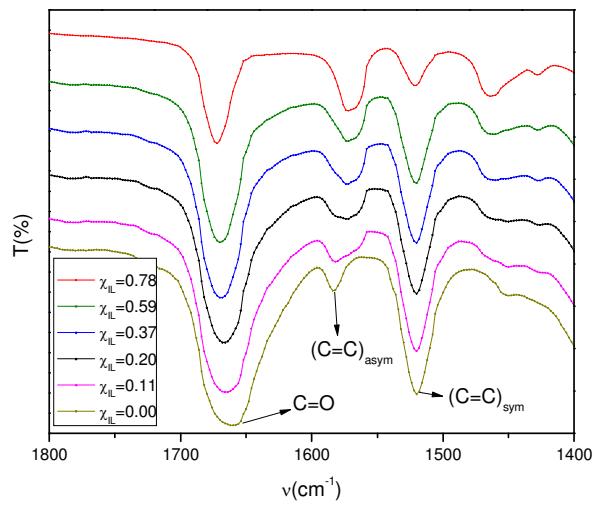


Figure S8. C=O and C=C vibration of 5-HMF in $[C_4\text{mim}][\text{N}(\text{CN})_2]$ /5-HMF mixtures as a function of mole fraction of the IL.

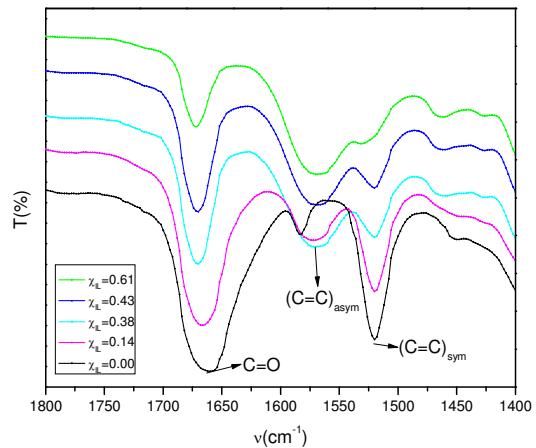


Figure S9. C=O and C=C vibration of 5-HMF in [C₄mim][CH₃COO]/5-HMF mixtures as a function of mole fraction of the IL.

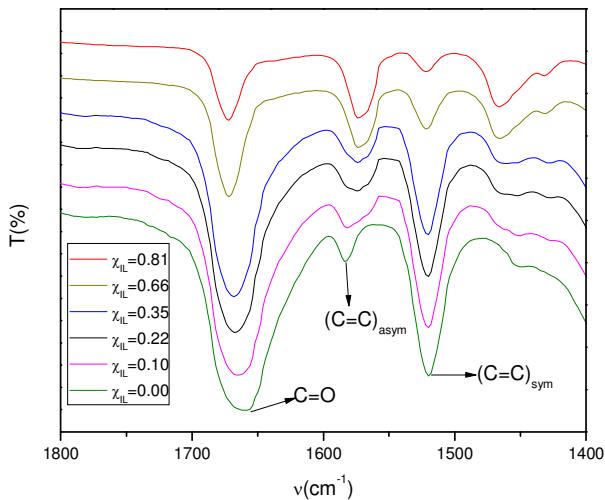


Figure S10. C=O and C=C vibration of 5-HMF in [C₄mim][CH₃OSO₃]/5-HMF mixtures as a function of mole fraction of the IL.

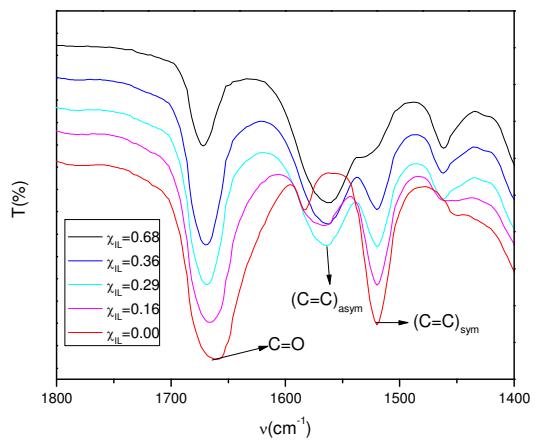


Figure S11. C=O and C=C vibration of 5-HMF in $[\text{C}_4\text{mim}][\text{C}_2\text{H}_5\text{COO}]/5\text{-HMF}$ mixtures as a function of mole fraction of the IL.

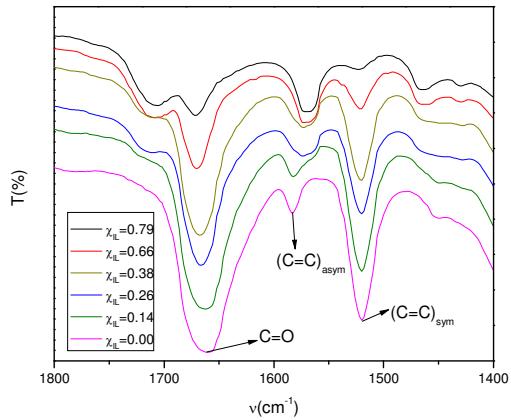


Figure S12. C=O and C=C vibration of 5-HMF in $[\text{C}_4\text{mim}][\text{HSO}_4]/5\text{-HMF}$ mixtures as a function of mole fraction of the IL.

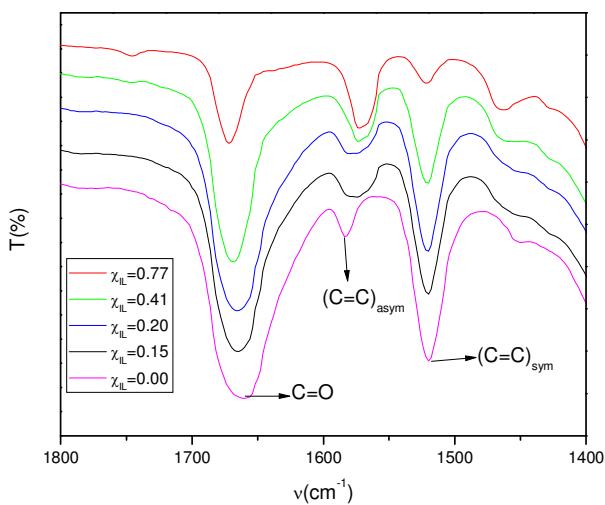


Figure S13. C=O and C=C vibration of 5-HMF in $[C_4\text{mim}][\text{NO}_3]$ /5-HMF mixtures as a function of mole fraction of the IL.

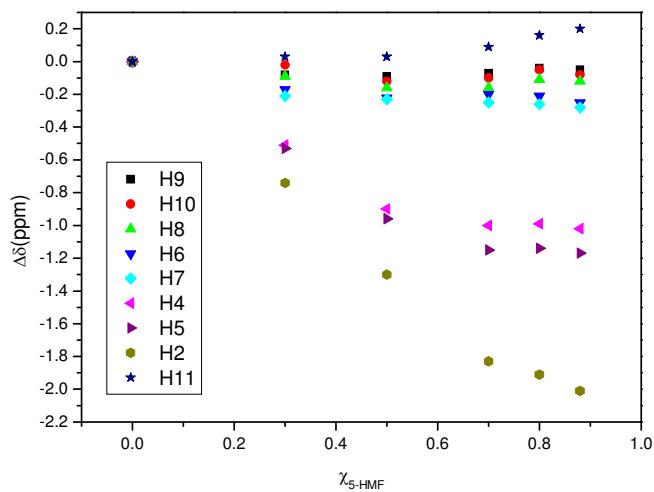


Figure S14. The variety of $\Delta\delta$ values for the protons of $[C_4\text{mim}][\text{CH}_3\text{COO}]$ as a function of mole fraction of 5-HMF in the IL/5-HMF mixtures.

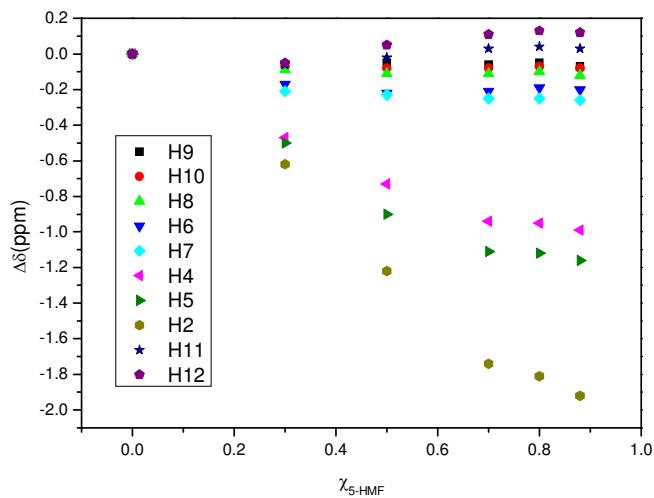


Figure S15. The variety of $\Delta\delta$ values for the protons of $[\text{C}_4\text{mim}][\text{C}_2\text{H}_5\text{COO}]$ as a function of mole fraction of 5-HMF in the IL/5-HMF mixtures.

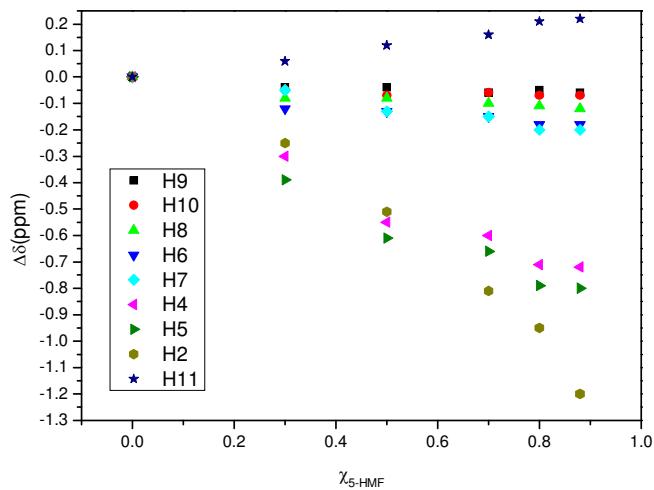


Figure S16. The variety of $\Delta\delta$ values for the protons of $[\text{C}_4\text{mim}][\text{HSO}_4]$ as a function of mole fraction of 5-HMF in the IL/5-HMF mixtures.

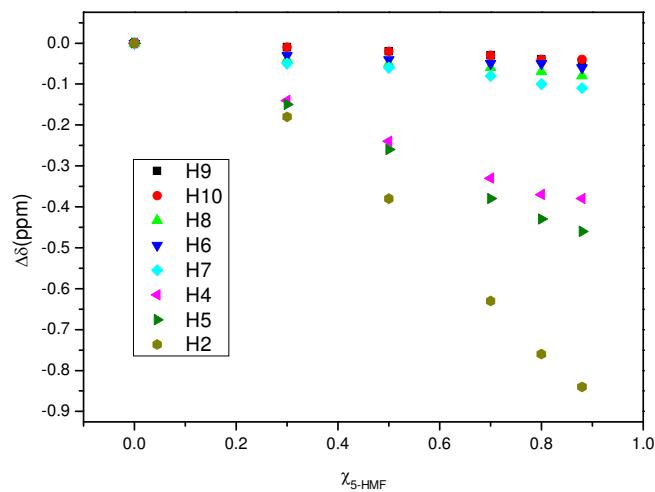


Figure S17. The variety of $\Delta\delta$ values for the protons of $[\text{C}_4\text{mim}][\text{CF}_3\text{COO}]$ as a function of mole fraction of 5-HMF in the IL/5-HMF mixtures.

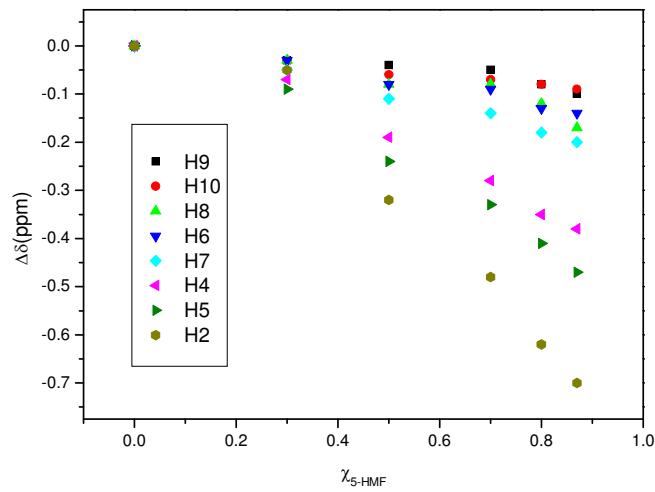


Figure S18. The variety of $\Delta\delta$ values for the protons of $[\text{C}_4\text{mim}][\text{NO}_3]$ as a function of mole fraction of 5-HMF in the IL/5-HMF mixtures.

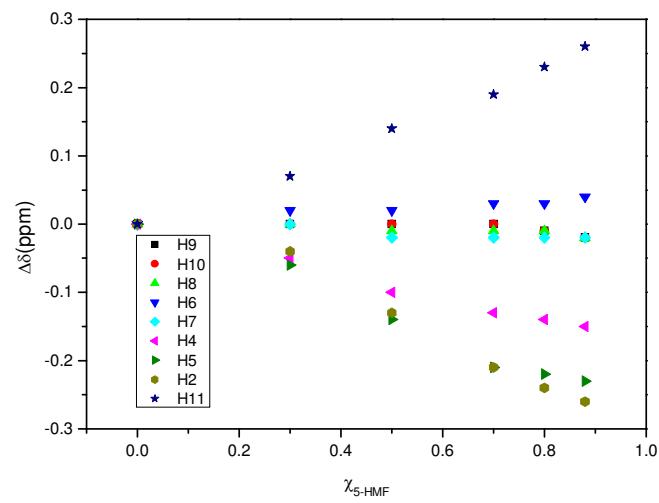


Figure S19. The variety of $\Delta\delta$ values for the protons of $[\text{C}_4\text{mim}][\text{CH}_3\text{OSO}_3]$ as a function of mole fraction of 5-HMF in the IL/5-HMF mixtures.