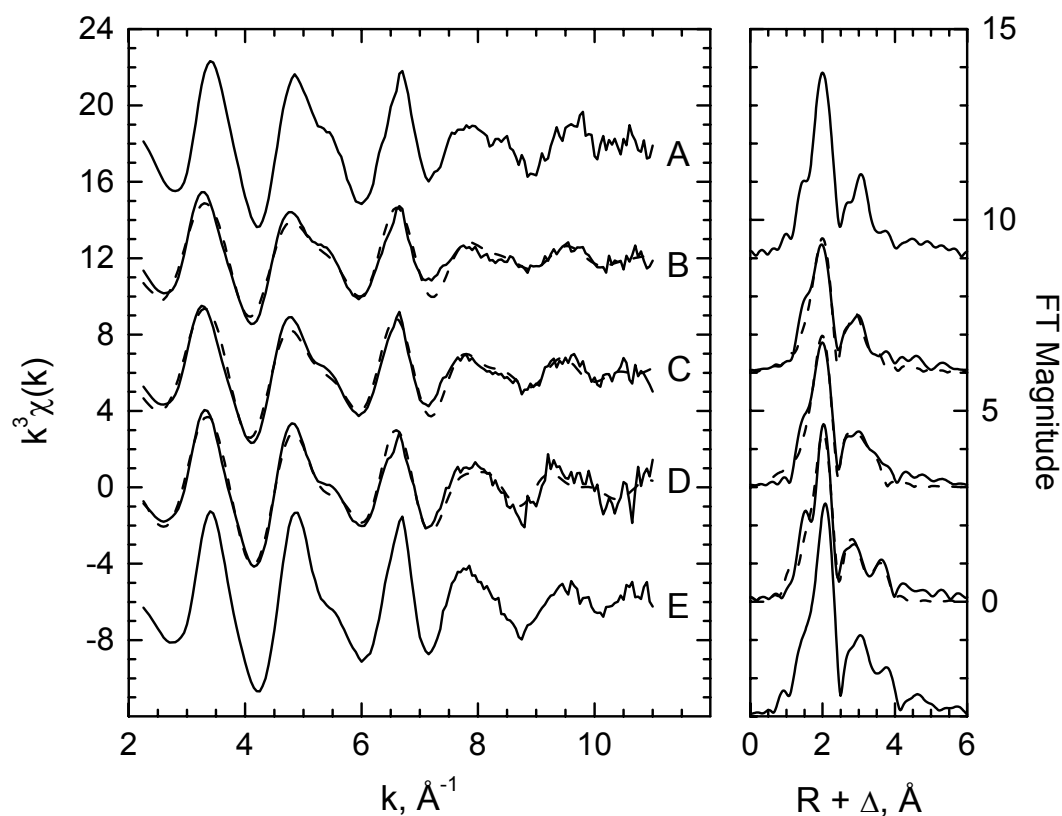


Electronic Supplementary Information for *Synergistic Effects in the Facilitated Transfer of Metal Ions into Room-Temperature Ionic Liquids*, Dominique Stepinski, Mark P. Jensen, Julie A. Dzielawa, and Mark L. Dietz.



**Figure S1.**  $k^3$ -weighted Sr K-edge EXAFS of Sr-crown ether complexes in RTIL-TBP mixtures. (A) Sr(18-crown-6)(NO<sub>3</sub>)<sub>2</sub> dissolved in C<sub>5</sub>mim<sup>+</sup>Tf<sub>2</sub>N<sup>-</sup>, (B) Sr(DCH18C6)(NO<sub>3</sub>)<sub>2</sub> extracted in 100 % TBP, (C) Sr(DCH18C6)<sup>2+</sup> extracted into 10% C<sub>5</sub>mim<sup>+</sup>Tf<sub>2</sub>N<sup>-</sup>/90% TBP, (D) Sr(DCH18C6)<sup>2+</sup> extracted into 40% C<sub>5</sub>mim<sup>+</sup>Tf<sub>2</sub>N<sup>-</sup>/60% TBP, (E) Sr(DCH18C6)(H<sub>2</sub>O)<sub>2</sub><sup>2+</sup> extracted into 100% C<sub>5</sub>mim<sup>+</sup>Tf<sub>2</sub>N<sup>-</sup>.

**Table S1.** Scattering path lengths and energy threshold shifts for the most important scattering paths calculated by fitting FEFF8.00 theoretical phase and amplitude functions to the  $k^3$ -weighted Sr K-edge EXAFS. Calculated uncertainties in last digit of the fit parameters are given in parentheses. RTIL =  $C_5mim^+Tf_2N^-$

Solvent	Complex Species	Average Scattering Path Length / Å					$\Delta E_0$ / eV
		Sr-O	Sr-N	Sr-C	Sr-C-O <sup>b</sup>	Sr-O <sub>distal</sub> <sup>c</sup>	
RTIL <sup>a</sup>	Sr(NO <sub>3</sub> ) <sub>2</sub> (DCH18C6)	2.67	3.07	3.54	3.84	4.31	
RTIL <sup>a</sup>	Sr(H <sub>2</sub> O) <sub>2</sub> (DCH18C6) <sup>2+</sup>	2.65		3.55	3.84		
100% TBP	Sr(DCH18C6) <sup>2+</sup>	2.62 (2)	3.08 <sup>d</sup>	3.51 (3)	3.85 (5)	4.29 (5)	6.2 (1.5)
10% RTIL/90% TBP	Sr(DCH18C6) <sup>2+</sup>	2.61 (1)		3.53 (2)	3.81 (2)		4.9 (1.1)
40% RTIL/60% TBP	Sr(DCH18C6) <sup>2+</sup>	2.60 (1)		3.52 (2)	3.81 (3)		5.0 (1.3)

<sup>a</sup>Reference 6

<sup>b</sup>Multiple scattering path

<sup>c</sup>Includes both single and multiple scattering paths

<sup>d</sup>Fixed parameter

**Table S2.** Debye-Waller Factors for the most important scattering paths calculated by fitting FEFF8.00 theoretical phase and amplitude functions to the  $k^3$ -weighted Sr K-edge EXAFS. Calculated uncertainties in last digit of the fit parameters are given in parentheses. RTIL =  $C_5mim^+Tf_2N^-$

Solvent	Complex Species	Debye-Waller Factor / Å <sup>-2</sup>				
		Sr-O	Sr-N	Sr-C	Sr-C-O <sup>b</sup>	Sr-O <sub>distal</sub> <sup>c</sup>
RTIL <sup>a</sup>	Sr(NO <sub>3</sub> ) <sub>2</sub> (DCH18C6)	0.0136 <sup>d</sup>	0.04	0.009	0.002	0.008
RTIL <sup>a</sup>	Sr(H <sub>2</sub> O) <sub>2</sub> (DCH18C6) <sup>2+</sup>	0.0136 <sup>d</sup>		0.010	0.004	
100% TBP	Sr(DCH18C6) <sup>2+</sup>	0.0136 <sup>d</sup>		0.0108 <sup>d</sup>	0.003 (3)	0.010 (7)
10% RTIL/90% TBP	Sr(DCH18C6) <sup>2+</sup>	0.0136 <sup>d</sup>		0.0108 <sup>d</sup>	0.002 (2)	
40% RTIL/60% TBP	Sr(DCH18C6) <sup>2+</sup>	0.0136 <sup>d</sup>		0.0108 <sup>d</sup>	0.005 (3)	

<sup>a</sup>Reference 6

<sup>b</sup>Multiple scattering path

<sup>c</sup>Includes both single and multiple scattering paths

<sup>d</sup>Fixed parameter