Supplementary information for

Investigation of the influence of alkyl side chain length on the fluorescence response of C153 in a series of room temperature ionic liquids

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Table S1 Experimental dynamic viscosity (η) for $[C_n mim][FAP]$ (n=2, 4, 6) , room temperature ionic liquids at different temperatures.

	η/cP[a]

Temp. (K)	[C_2mim][FAP]	[C_4mim][FAP]	[C_6mim][FAP]
293	73.1	93.4	112.7
298	58.5	72.3	86.7
303	47.6	57.4	67.9
308	39.2	46.3	54.1
313	32.5	37.8	43.2
318	27.1	31.1	35.2
323	22.9	25.7	28.8

experimental errors are ± 5%

Table S2 Experimental density of [$C_n$mim][FAP] (n=2, 4, 6), room temperature ionic liquids at different temperatures.

	ρ/gm cm^{-3}		
Temp. (K)	[C_2mim][FAP]	[C_4mim][FAP]	[C_6mim][FAP]
293	1.714621	1.630374	1.555163
298	1.708707	1.624752	1.549773
303	1.702773	1.619121	1.544367
308	1.696854	1.613498	1.538969
313	1.690951	1.607885	1.533583
318	1.685064	1.602278	1.528208
323	1.679198	1.596683	1.522850

experimental errors are ± 5%

Table S3 Fitting Parameters for Viscosity Measurements

RTILs	A_0	A_1	R^2
[C_2mim][FAP]	-3.55	1583.93	0.9992
[C_4mim][FAP]	-4.02	1752.10	0.9988
[C_6mim][FAP]	-4.31	1861.30	0.9992

Table S4 Fitting Parameters for Densities Measurements

RTILs	A_2	$A_3 \times 10^{-3}$	R^2
[C_2mim][FAP]	2.06	-1.18	0.9999
[C_4mim][FAP]	1.96	-1.12	1.0000
[C_6mim][FAP]	1.87	-1.08	0.9999

Table S5 Reorientation Times of C153 in [$C_n$mim][FAP] (n=2, 4, and 6) room temperature ionic liquids as a Function of Temperature

RTILs	Temp.(K)	Vis.(cP)	$^{a}r_0$	a_1	τ_{1r}	a_2	τ_{2r}	$<\tau_r(ns)>$	$^{b}C_{obs.}$
[C_2mim][FAP]	293	73.1	0.38	0.22	0.94	0.78	4.12	3.42	0.52
	298	58.5	0.38	0.20	0.92	0.80	3.11	2.67	0.51
	303	47.6	0.37	0.23	0.89	0.77	2.58	2.19	0.53
	308	39.2	0.37	0.33	0.98	0.67	2.31	1.87	0.56
	313	32.5	0.38	0.70	1.18	0.30	2.57	1.60	0.58
[C_4mim][FAP]	293	93.4	0.37	0.20	1.00	0.80	5.58	4.66	0.55
	298	72.3	0.36	0.20	0.80	0.80	4.35	3.64	0.57
	303	57.4	0.37	0.21	0.65	0.79	3.49	2.89	0.58
	308	46.3	0.37	0.21	0.53	0.79	2.82	2.34	0.59
	313	37.8	0.36	0.21	0.57	0.79	2.39	2.01	0.63
[C_6mim][FAP]	293	112.7	0.37	0.23	0.81	0.77	6.37	5.17	0.51
	298	86.7	0.36	0.24	1.01	0.76	5.14	4.15	0.54
	303	67.9	0.37	0.23	0.81	0.77	3.98	3.25	0.55
	308	54.1	0.36	0.21	0.66	0.79	3.16	2.63	0.57
	313	43.2	0.35	0.19	0.63	0.81	2.53	2.17	0.59

[a] initial anisotropy, [b]observed rotational coupling constant

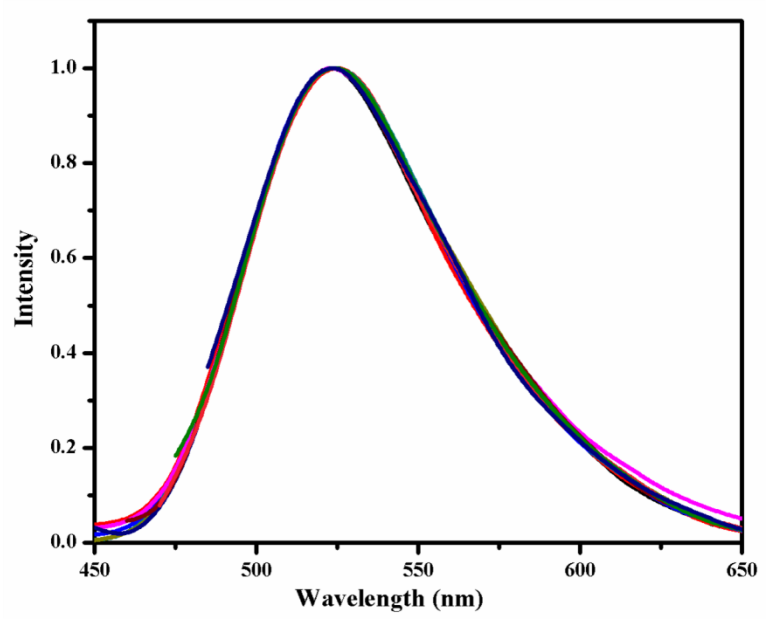

Fig. S1 Normalized excitation wavelength dependent emission spectra of C153 in [C_2mim][FAP] ionic liquid.

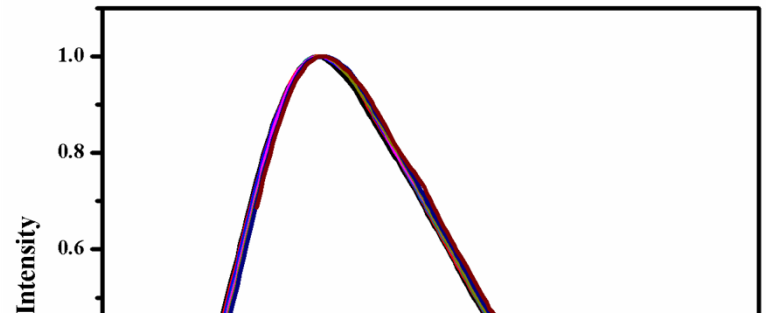

Fig. S2 Normalized excitation wavelength dependent emission spectra of C153 in [C_6mim][FAP] ionic liquid.