Influence of the Organized Structure of 1-Alkyl-3-methylimidazolium Tetrafluoroborates on the Rotational Diffusion of Structurally Similar Nondipolar Solutes

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Supporting Information

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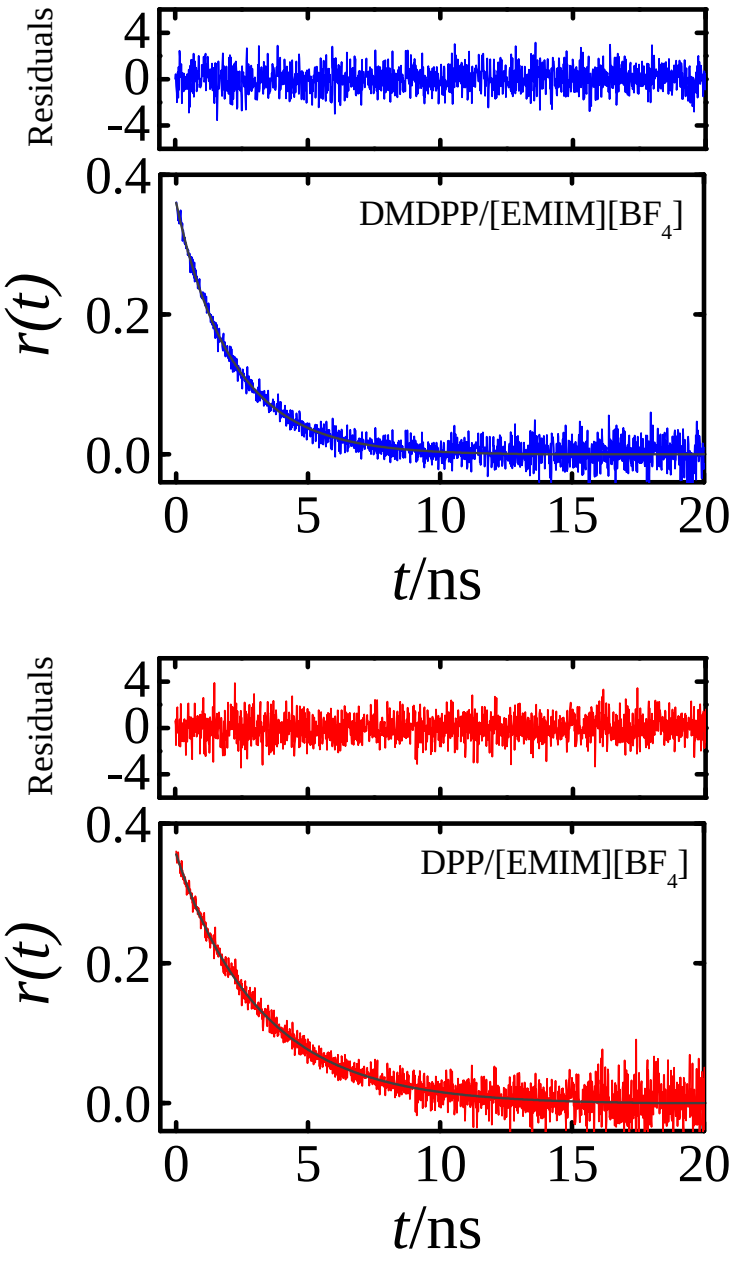

Figure 1. Anisotropy decays of DMDPP and DPP in [EMIM][BF_4] at 298 K along with their residual distributions.

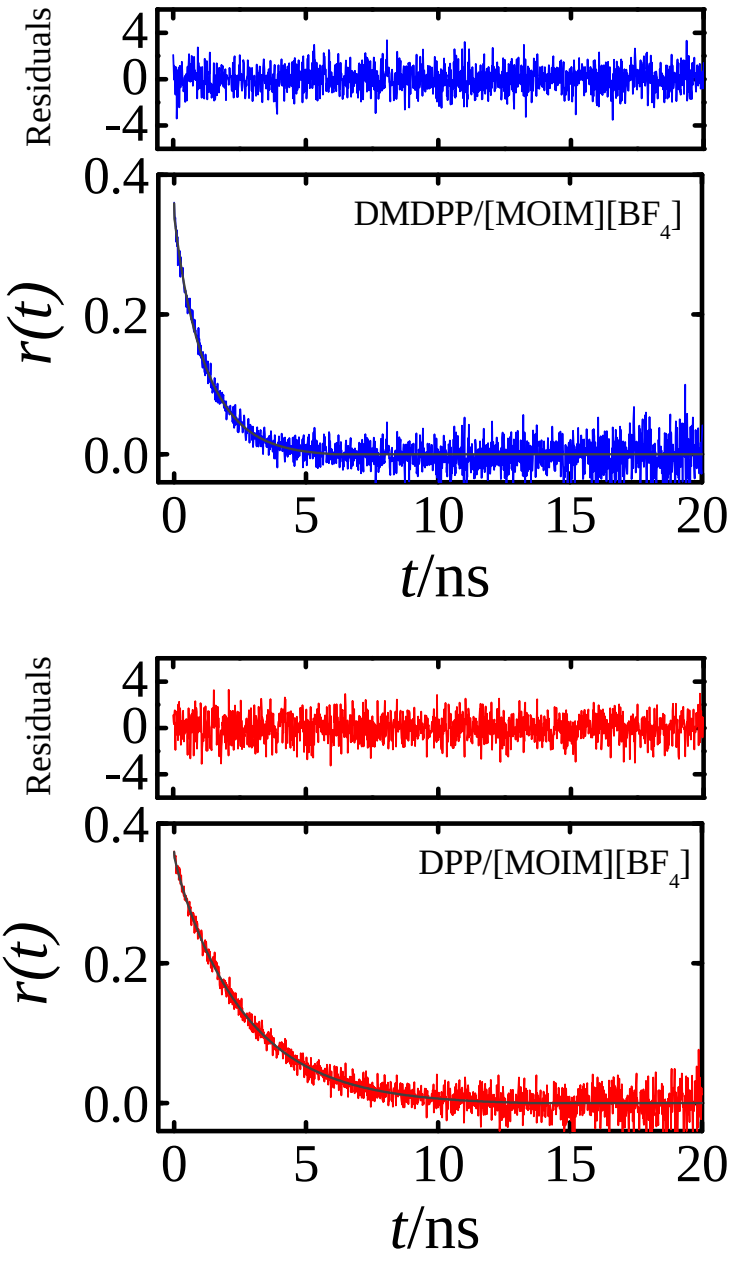

Figure 2. Anisotropy decays of DMDPP and DPP in [MOIM][BF_4] at 348 K along with their residual distributions.

TABLE 1: Reorientation Times of DMDPP and DPP in [EMIM][BF_4] as a Function of Temperature Along with Solvent Viscosity

T / K	η / mPa s	$\tau_{r\,/}$ ns	
		DMDPP	DPP
298	37.4	2.10	3.24
303	31.5	1.74	2.67
308	26.6	1.43	2.22
313	22.8	1.19	1.82
318	19.7	1.01	1.55
323	17.1	0.87	1.31
328	15.1	0.74	1.14
338	11.8	0.55	0.86
348	9.53	0.45	0.67

TABLE 2: Reorientation Times of DMDPP and DPP in [BMIM][BF_4] as a Function of Temperature Along with Solvent Viscosity

T / K	η / mPa s	$\tau_{r\,/}$ ns	
		DMDPP	DPP
298	106	5.22	8.81
303	83.0	4.00	6.99
308	66.4	3.15	5.46
313	53.2	2.53	4.37
318	42.7	2.02	3.55
323	35.2	1.63	2.84
328	29.8	1.35	2.30
338	21.3	0.92	1.62
348	16.0	0.70	1.22

TABLE 3: Reorientation Times of DMDPP and DPP in [HMIM][BF_4] as a Function of Temperature Along with Solvent Viscosity

T / K	η / mPa s	$\tau_{r\,/}$ ns	
		DMDPP	DPP
298	206	8.01	15.47
303	157	6.15	12.74
308	120	4.82	10.22
313	93.8	3.81	8.21
318	74.7	3.02	6.52
323	60.6	2.41	5.31
328	49.4	1.96	4.26
338	33.8	1.32	2.88
348	24.2	0.95	2.03

TABLE 4: Reorientation Times of DMDPP and DPP in [MOIM][BF_4] as a Function of Temperature Along with Solvent Viscosity

T / K	η / mPa s	$\tau_{r\,/}$ ns	
		DMDPP	DPP
298	328	9.02	16.41
303	247	7.13	14.44
308	185	5.75	12.14
313	143	4.58	10.07
318	112	3.73	8.29
323	88.8	2.93	6.84
328	71.6	2.42	5.62
338	48.2	1.66	3.82
348	33.6	1.15	2.67