Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary Information

Dynamic heterogeneity in aqueous ionic solution

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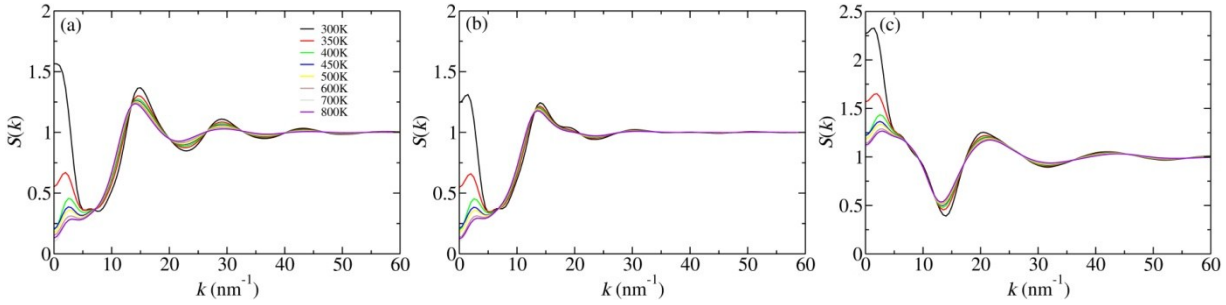

Fig. S1 Ion-ion static structure factors: (a) K^+-K^+, (b) SCN^--SCN^-, and (c) K^+-SCN^-.

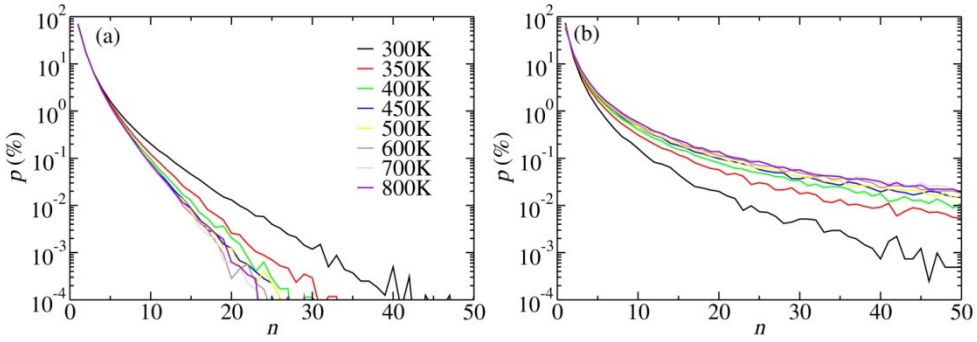

Fig. S2 Ion cluster size distributions consisted of K^+ (a) and SCN^- (b).

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Table S1 Ion cluster size distributions consisted of K^+. The first row is temperature and the first column is cluster size.

n	300 K	350 K	400 K	450 K	500 K	600 K	700 K	800 K
1	69.27%	70.57%	71.23%	71.58%	71.64%	71.42%	71.18%	70.82%
2	16.80%	16.99%	17.01%	17.05%	17.08%	17.20%	17.32%	17.42%
3	6.24%	6.12%	6.03%	5.93%	5.94%	6.04%	6.09%	6.18%
4	2.98%	2.76%	2.64%	2.58%	2.53%	2.58%	2.61%	2.68%
5	1.62%	1.41%	1.31%	1.27%	1.25%	1.24%	1.26%	1.29%
6	0.97%	0.81%	0.71%	0.66%	0.64%	0.65%	0.66%	0.68%
7	0.62%	0.48%	0.41%	0.37%	0.37%	0.36%	0.36%	0.38%

Table S2 Ion cluster size distributions consisted of SCN^-.

n	300 K	350 K	400 K	450 K	500 K	600 K	700 K	800 K
1	73.46%	67.75%	64.67%	62.74%	61.93%	60.53%	59.51%	59.13%
2	13.80%	15.10%	15.61%	15.84%	16.14%	16.22%	16.45%	16.51%
3	4.76%	5.74%	6.18%	6.61%	6.69%	6.85%	6.98%	7.16%
4	2.16%	2.86%	3.26%	3.48%	3.53%	3.78%	3.86%	3.93%
5	1.18%	1.68%	1.96%	2.12%	2.19%	2.37%	2.39%	2.42%
6	0.70%	1.09%	1.32%	1.42%	1.46%	1.60%	1.68%	1.66%
7	0.43%	0.74%	0.91%	1.03%	1.07%	1.14%	1.18%	1.22%

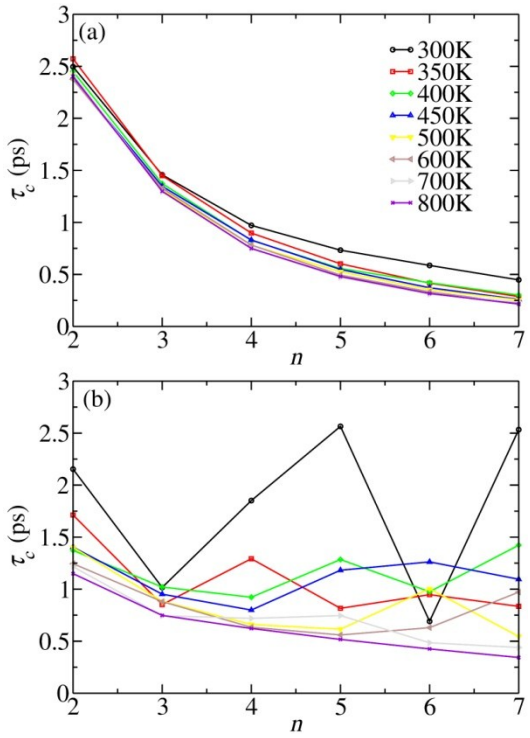

Fig. S3 Ion cluster size versus cluster lifetime: (a) K^+ and (b) SCN^-.

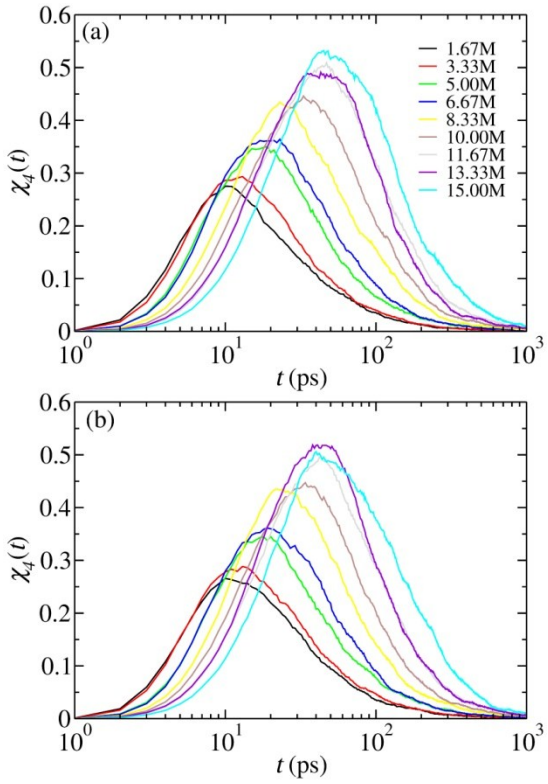

Fig. S4 Dynamic susceptibility for ion in different concentration: (a) K^+ and (b) SCN^-.

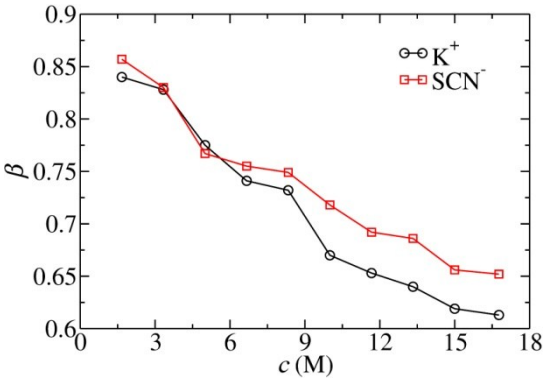

Fig. S5 Fitted exponents β for the self-intermediate scattering functions at different concentrations by $F_s(k,t)$: $e^{-(t/\tau)^{\beta}}$.

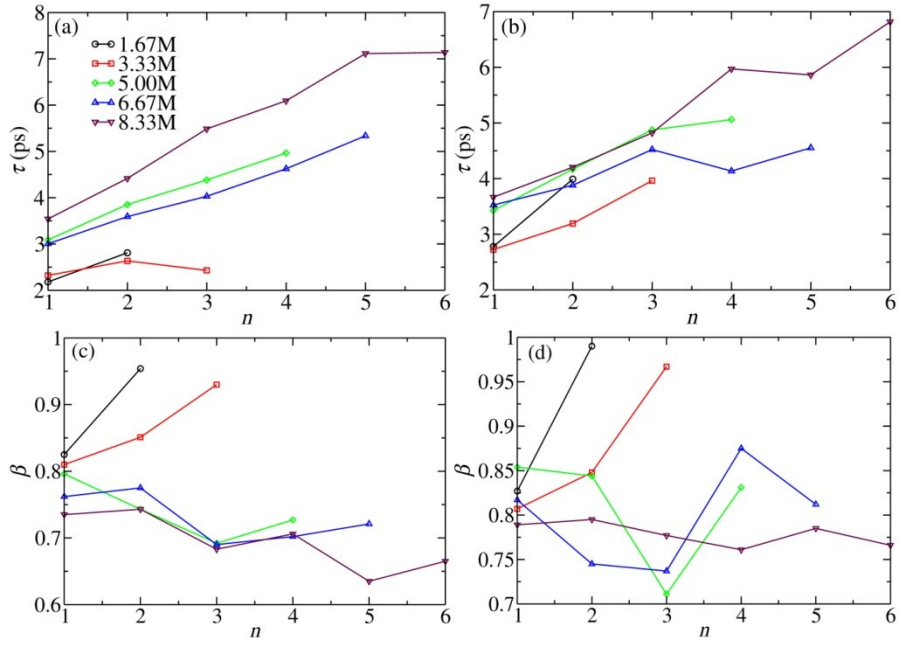

Fig. S6 Fitted τ and β of the self-van Hove functions for differently sized clusters by $F_s(k,t)$: $e^{-(t/\tau)^{\beta}}$ at different concentrations: (a) and (b) for K^+; (c) and (d) for SCN^-.

Table S3 Ion cluster size distributions consisted of K^+. The first row is concentration and the first column is cluster size.

n	1.67M	3.33M	5.00M	6.67M	8.33M
1	95.68%	88.72%	83.24%	81.50%	76.77%
2	4.25%	9.83%	12.78%	13.77%	15.66%
3		1.25%	2.84%	3.28%	4.47%
4			0.82%	0.94%	1.62%
5				0.34%	0.76%
6					0.36%

Table S4 Ion cluster size distributions consisted of SCN^-.

n	1.67M	3.33M	5.00M	6.67M	8.33M
1	96.55%	84.44%	75.93%	74.15%	70.72%
2	3.27%	12.16%	13.35%	14.64%	14.81%
3		2.57%	4.20%	4.98%	4.79%
4			2.10%	1.82%	1.89%
5				1.04%	1.30%
6					0.83%