Supporting Information

Heterogeneity in the dynamics of the ionic liquid [$BMIM^+$][PF_6^-] confined in a slit nanopore

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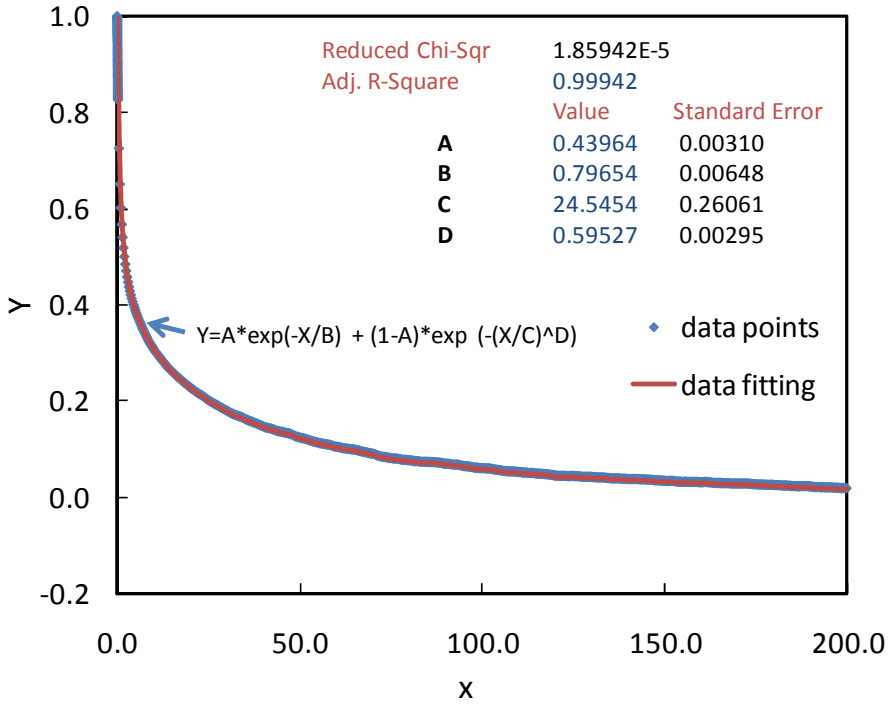
1. Representative Gromacs input file with MD parameters (.mdp file)

```
title                    = IL
cpp                      = /lib/cpp
include                  =
define                   = -DFLEXIBLE
integrator               = md
dt                       = 0.0005
nsteps                   = 20000000
nstxout                  = 50000
nstvout                  = 50000
nstlog                   = 50000
nstenergy                = 50000
nstxtcout                = 50000
xtc_grps                 =
energygrps               =
nstlist                  = 10
ns_type                  = grid
pbc                      = xyz
rlist                    = 1.0
vdw-type                 = Cut-off
rvdw                     = 1.2
coulombtype              = PME
rcoulomb                 = 1.0
DispCorr                 = EnerPres
fourierspacing           = 0.1
pme_order                = 6
ewald_rtol               = 1e-05
ewald_geometry           = 3d
epsilon_surface          = 0
optimize_fft             = yes
tcoupl                   = v-rescale
tc_grps                  = system
tau_t                    = 0.1
ref_t                    = 300
Pcoupl                   = no
Pcoupltype               = isotropic
tau_p                    = 1.0
compressibility          = 4.50e-5
ref_p                    = 1.0
gen_vel                  = yes
annealing                = single
```

```
annealing_npoints        = 9
annealing_time           = 0   2000 2200 2500 2800  3000 3500 4000
10000
annealing_temp           = 600 599.9 550 500 450  400 350 301  300
gen_temp                 = 300
gen_seed                 = 173529
constraints              = none
constraint_algorithm     = lincs
lincs_order              = 8
lincs_iter               = 2
```

2. Relaxation times



STATISTICS

Number of Points	1470
Degrees of Freedom	1466
Reduced Chi-Sqr	1.86E-05
Residual Sum of Squares	0.02726
Adj. R-Square	0.99942
Fit Status	Succeeded(100)

SUMMARY

A		B		C		D		Statistics	
Value	Standard Error	Value	Standard Error	Value	Standard Error	Value	Standard Error	Reduced Chi-Sqr	Adj. R-Square
0.43964	0.0031	0.79654	0.00648	24.54541	0.26061	0.59527	0.00295	1.86E-05	0.99942

ANOVA

	DF	Sum of Squares	Mean Square	F Value	Prob>F
Regression	4	58.43275	14.60819	785631.6916	0
Residual	1466	0.02726	1.86E-05		
Uncorrected Total	1470	58.46			
Corrected Total	1469	47.47342			

Figure S-1. Original $F_s(q,t)$ data and fitted KWW equation for the cations in the center regions of the pore at 350 K. Values of fitted parameters, standard errors, R^2 and relevant statistics for

the fit are also presented. Similar results were obtained for the rest of the fitted parameters shown in Figures 9-11. All numerical fits were performed using the OriginPro 8.5 software.