Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting information for: Ammonium-based Protic Ionic Liquid Doped Nafion Membrane as Anhydrous Fuel Cell Electrolyte

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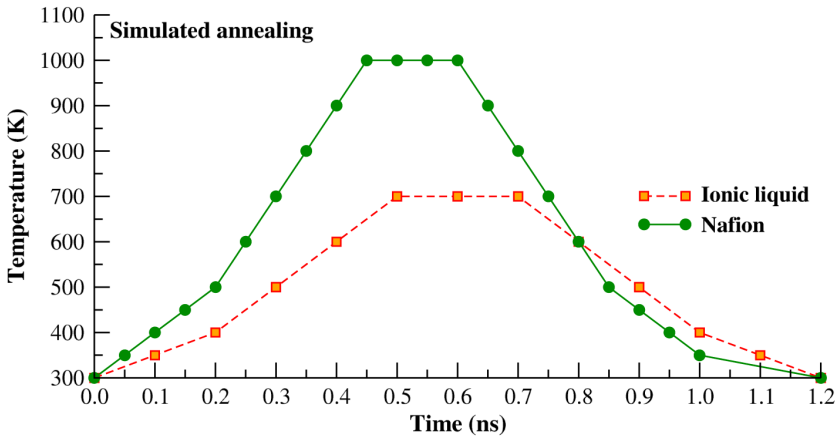

Figure S1: Variation in temperature with time for simulated annealing.

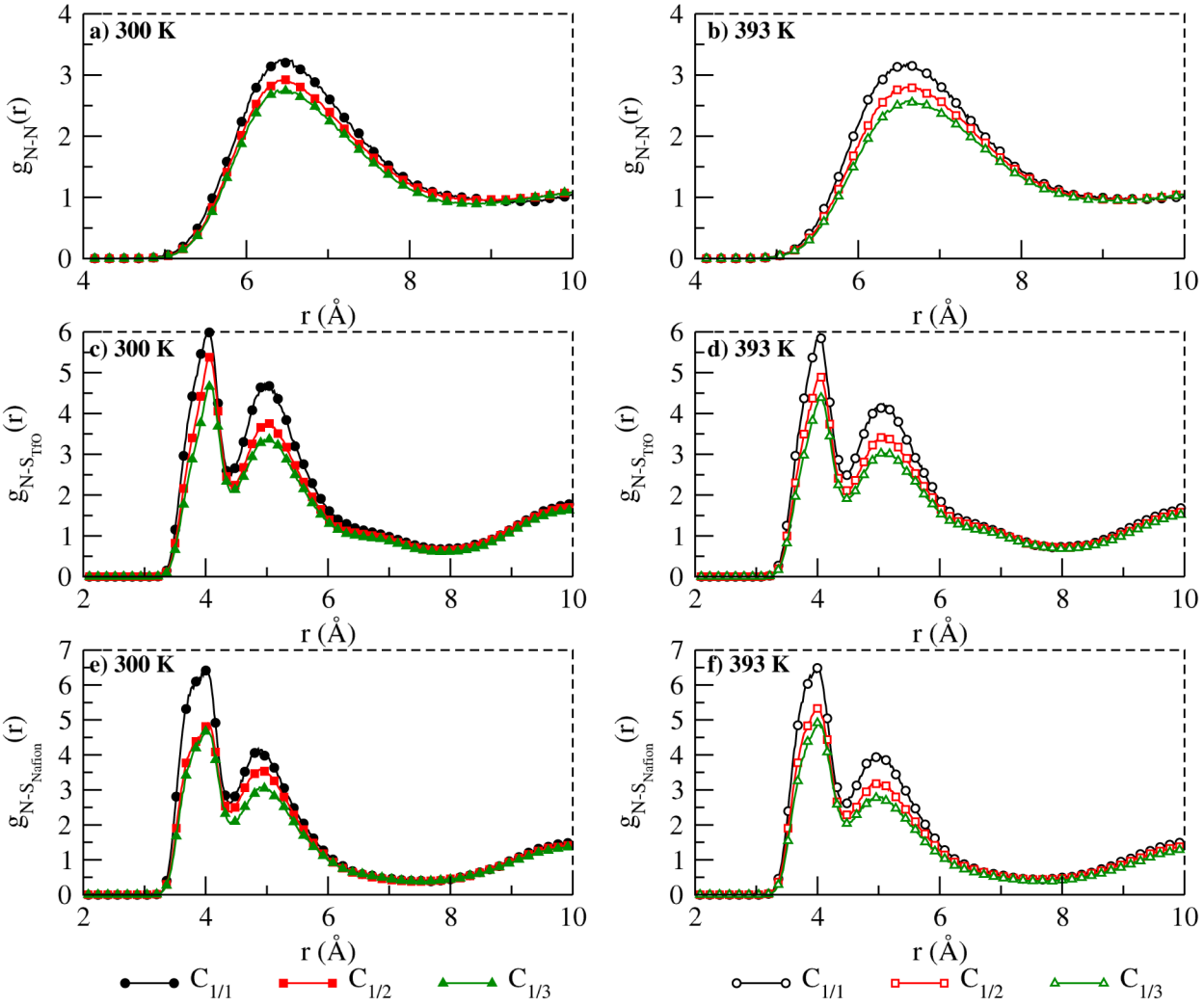

Figure S2: RDFs for ammonium cation interactions at 300 K and 393 K in (a, b) N–N, (c, d) N–S_{TfO}, and (e, f) N–S_{Nafion} respectively.

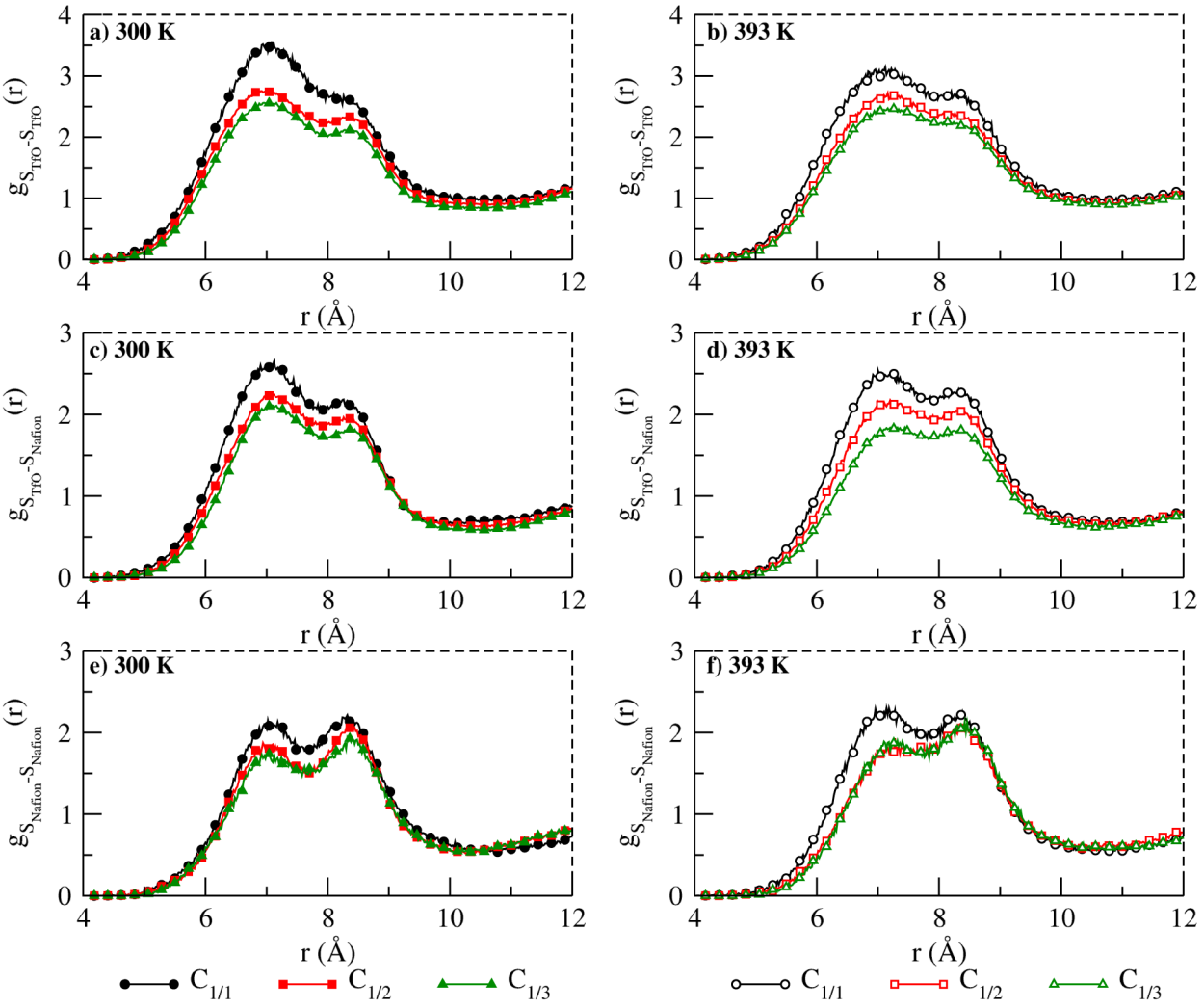

Figure S3: RDFs for sulfonate-sulfonate (S-S) interactions at 300 K and 393 K in (a, b) S_{TfO}–S_{TfO}, (c, d) S_{TfO}–S_{Nafion}, and (e, f) S_{Nafion}–S_{Nafion} respectively.

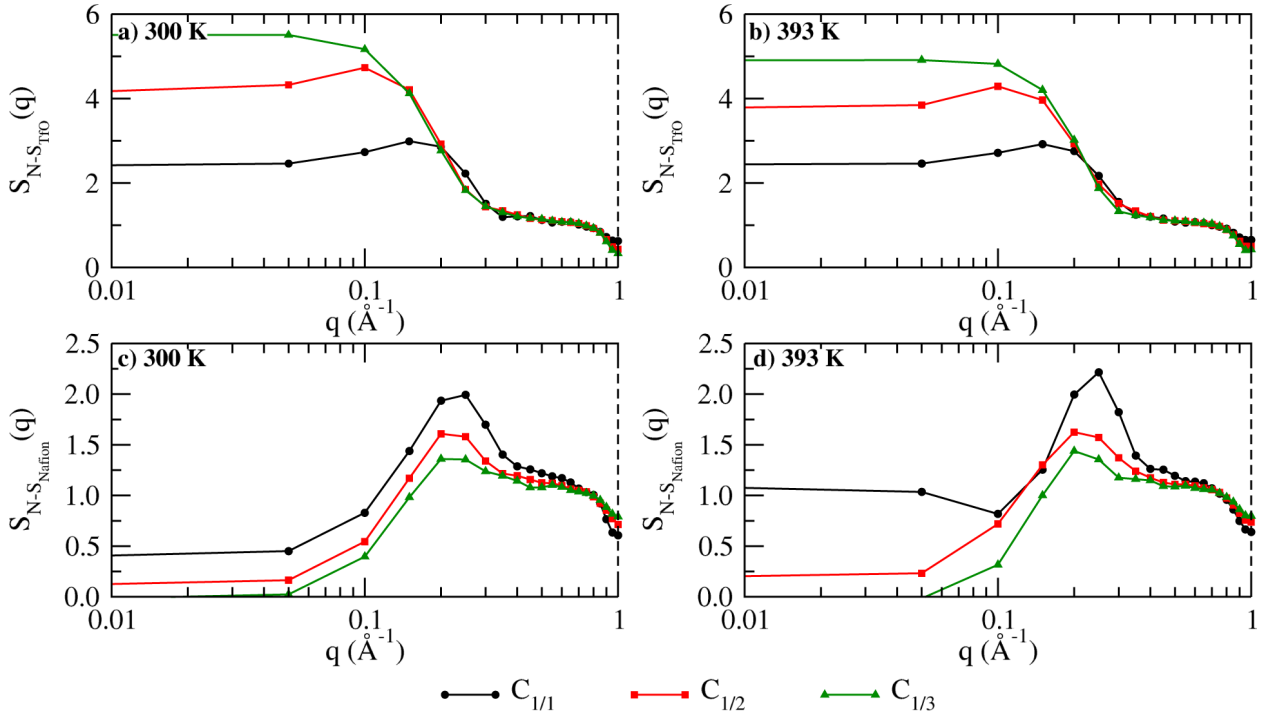

Figure S4: Structure factor calculated at 300 K and 393 K for (a, b) N–S_{TfO}, and (c, d) N–S_{Nafion} interactions respectively.

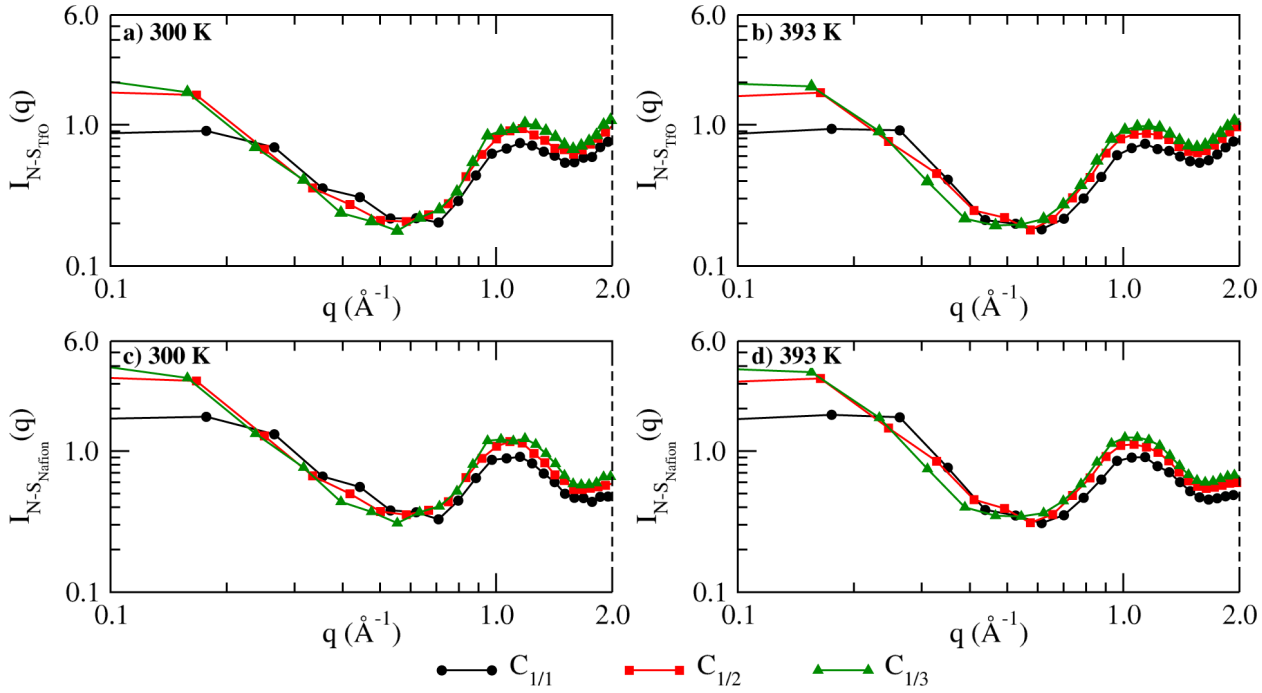

Figure S5: Scattering intensities calculated at 300 K and 393 K for (a, b) N–S_{TfO}, and (c, d) N–S_{Nafion} interactions respectively.

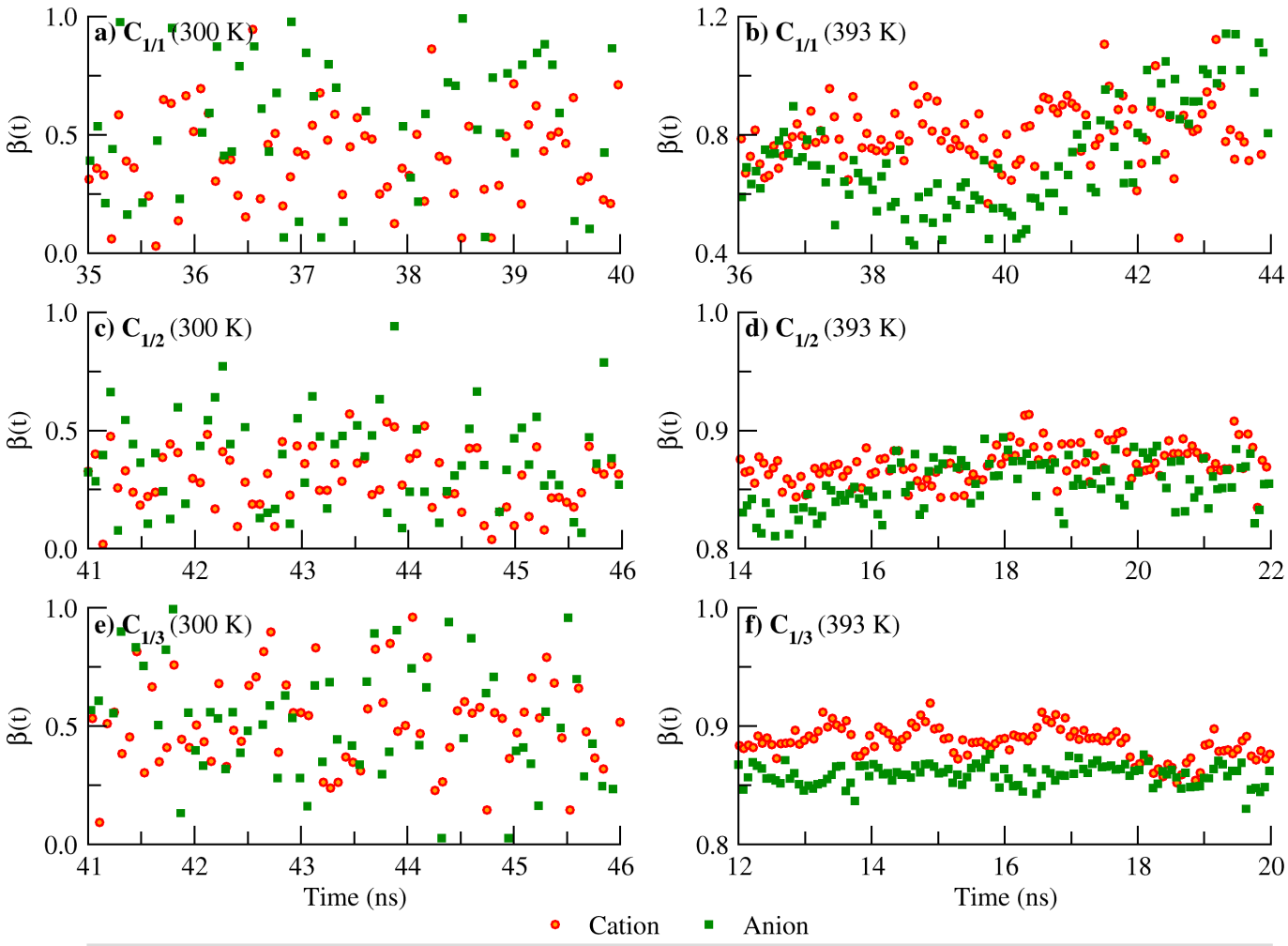

Figure S6: The β plot for cations and anions of PILs at varying Nafion:PIL ratios (a, b) $C_{1/1}$, (c, d) $C_{1/2}$, and (e, f) $C_{1/3}$ at 300 K and 393 K respectively. (Time window shown here was used for determining diffusion coefficients)