Supporting information for: Computational Study of the Structure and Rheological Properties of Self-Associating Polymer Networks

Mark Wilson,[†] Avinoam Rabinovitch,[‡] and Arlette R.C. Baljon[*,¶]

Department of Computational Science, San Diego State University, San Diego, California, USA, Department of Physics, Ben-Gurion University of the Negev, Beer Sheva, Israel, and Department of Physics, San Diego State University, San Diego, California, USA

E-mail: abaljon@mail.sdsu.edu

The loss moduli data in Figure 5 (main article) do not collapse at high frequencies. Wyss et al.[S1] have pointed out that in this domain the Rouse contribution $c\omega^{1/2}$ becomes important. This term depends on ω itself rather than ω/β. By subtracting this distribution, these authors were able to obtain good collapse of the loss data at high frequencies. Figure S1 shows the same for our data. Note that we obtain the best result when the value of c is slightly dependent on strain rate. Also, we only show approximately one decade of data above the frequency at which the loss moduli peak. Higher frequencies are problematic given that the scaling in Figure 5 is with $\omega^{0.54}$.

[*]To whom correspondence should be addressed

[†]Department of Computational Science, San Diego State University, San Diego, California, USA

[‡]Department of Physics, Ben-Gurion University of the Negev, Beer Sheva, Israel

[¶]Department of Physics, San Diego State University, San Diego, California, USA

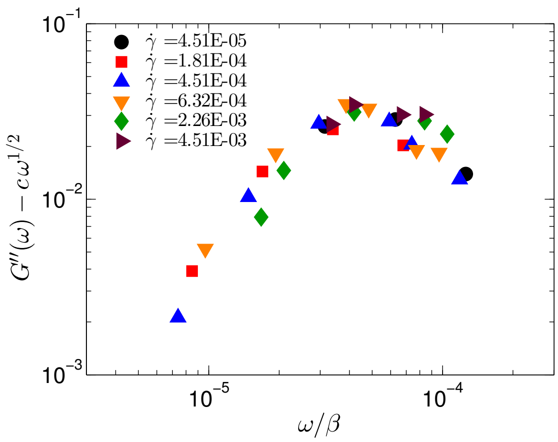

Figure S1: The loss moduli G'' with the Rouse contribution $c\omega^{1/2}$ subtracted out. Data are shown as a function of scaled frequency for multiple strain rates. Here, the value of c varies per strain rate between 1.8 and 2.75.

Figure 9 (main article) shows the aggregate size distribution at different frequencies for one strain rate. In Figure S2, we show that the size distribution dependence on strain rate is dictated by ω/β. In order to do so, we look at the magnitude of the peak value of the distribution. As can be seen, data for different strain rates show a similar trend.

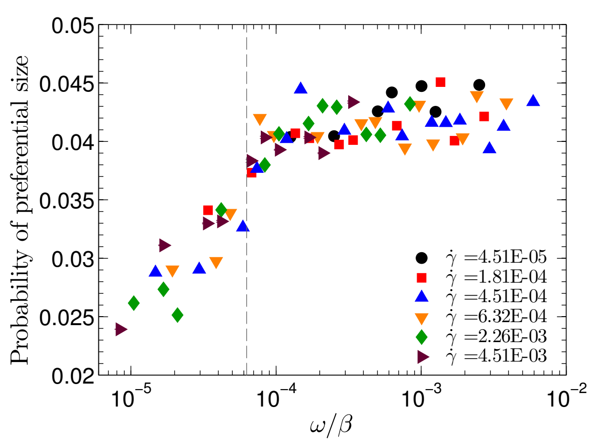

Figure S2: The probability of finding the preferential size within the aggregate size distribution. Data are scaled within the frequency domain by the previously mentioned β factors and shown for multiple strain rates.

References

(S1) Wyss, H. M.; Miyazaki, K.; Mattsson, J.; Hu, Z.; Reichman, D. R.; Weitz, D. A. *Physical Review Letters* **2007**, *98*, 238303.