

Stronger Together. Poly(styrene) Gels Reinforced by Soft Gellan Gum

Dariya Getya^{1,2} Ivan Gitsov^{1,2,3}

¹Department of Chemistry, State University of New York – ESF, Syracuse, NY 13210, USA

²The Michael M. Szwarc Polymer Research Institute, Syracuse, NY 13210, USA

³The BioInspired Institute, Syracuse University, Syracuse, NY 13244, USA

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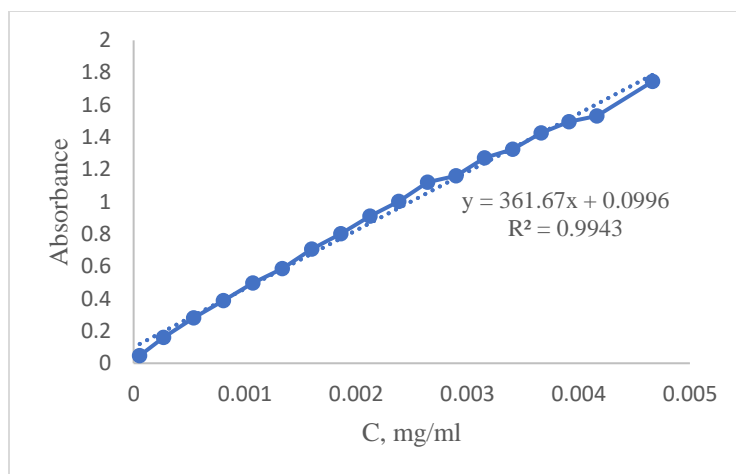


Figure S1. Calibration curve constructed using UV-VIS absorbance of 4-VBC at 265 nm to estimate the Gellan Gum degree of substitution.

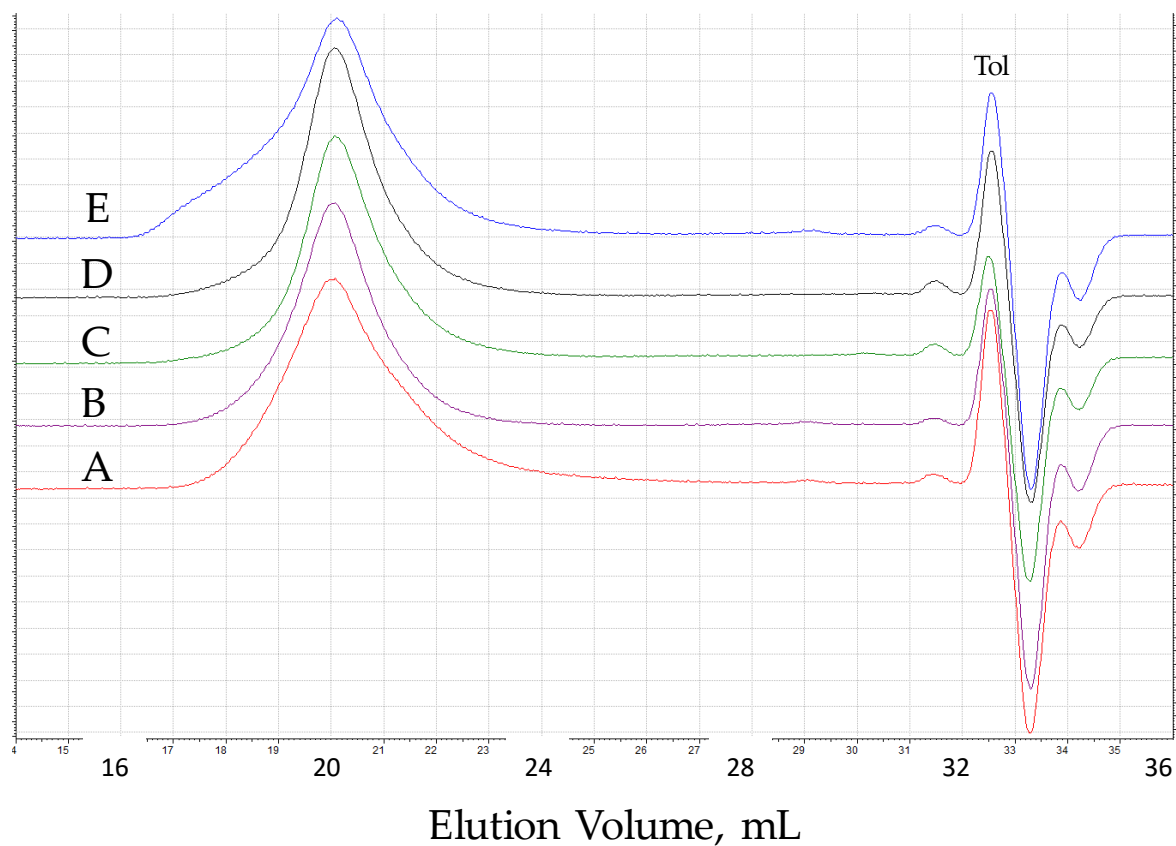


Figure S2. Size-exclusion chromatography dRI traces of PSt extracted by CHCl_3 after 48 h from PSt-VBzGG-m 1 wt% SIPNs. A – VBzGG-1, B – VBzGG-3, C – VBzGG-5, D – VBzGG-7, E – VBzGG-10. Tol – toluene flow rate marker.

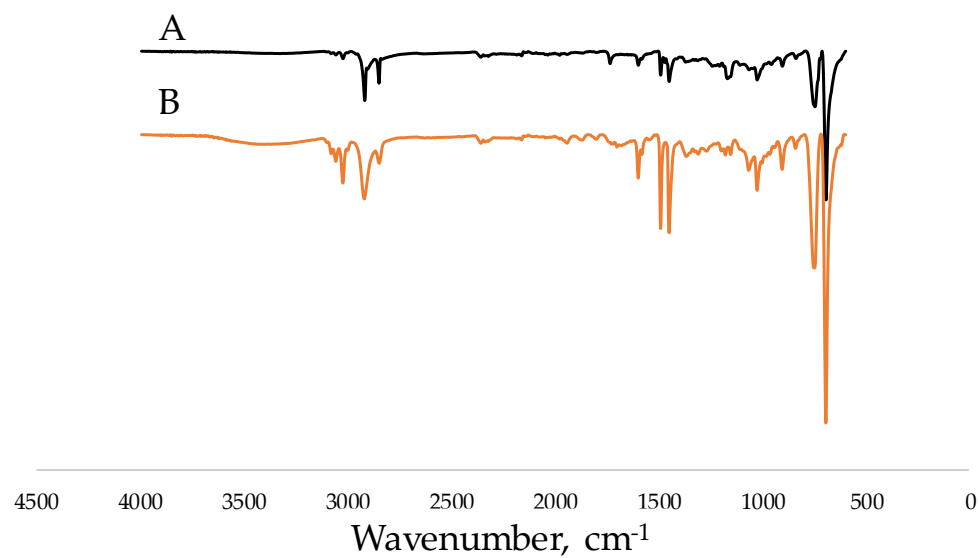


Figure S3. FT-IR spectra of PSt-VBzGG-3 1 wt % s-SIPN (A) and PSt-l-VBzGG-3 1 wt% conetwork (B).

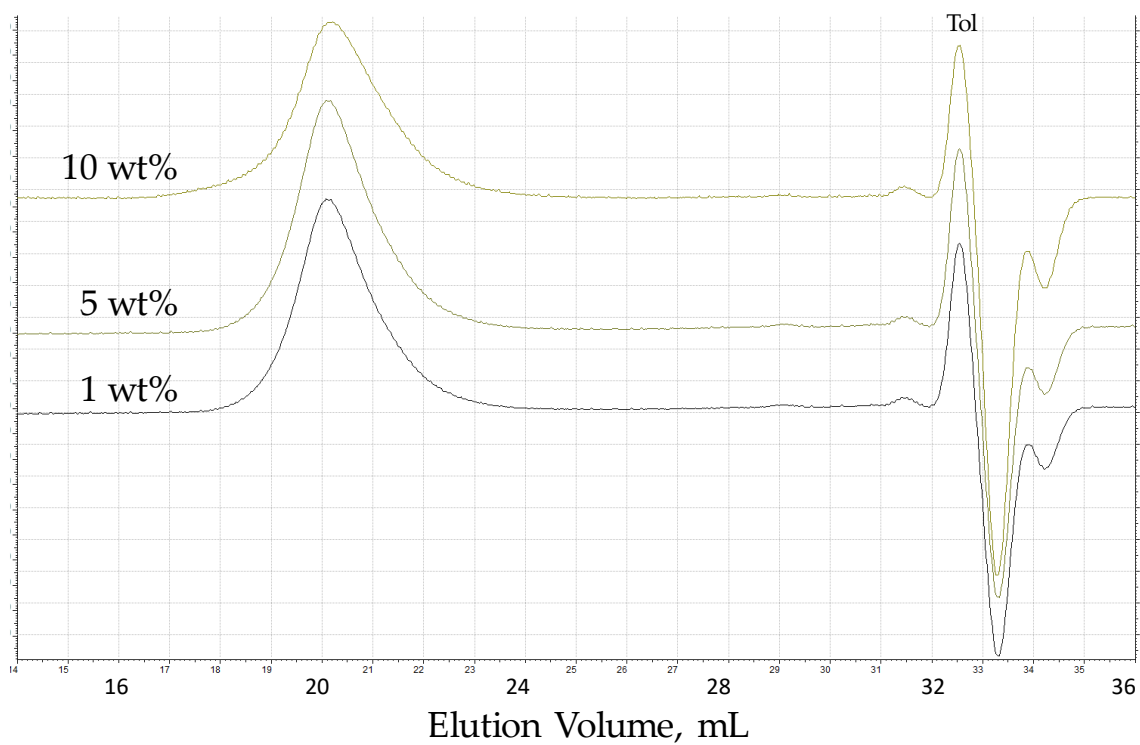


Figure S4. Size-exclusion chromatography dRI traces of PSt isolated after 48 h of CHCl₃ extraction of VBzGG-3 copolymerization mixtures. A - 1 wt%; B - 5 wt%, C - 10 wt%. Tol – toluene flow rate marker.

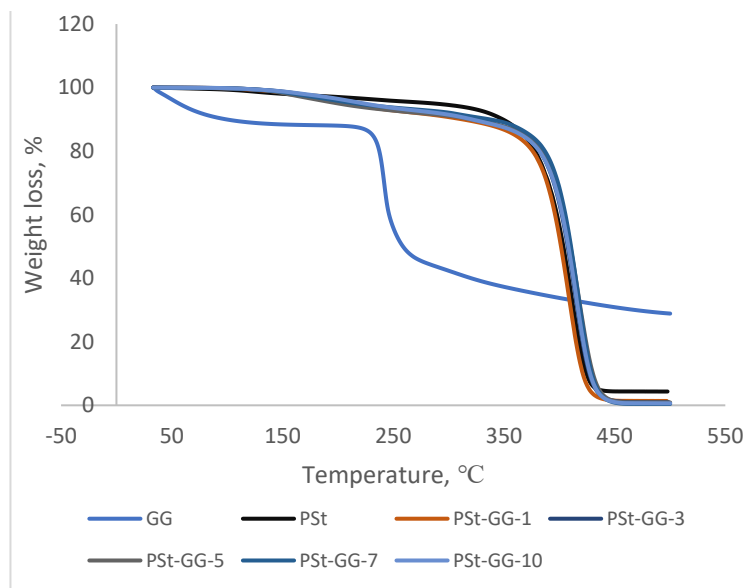


Figure S5. TGA thermograms of Gellan Gum (GG), extracted poly(styrene), PSt and PSt-VBzGG-m SIPNs (PSt-GG-m).

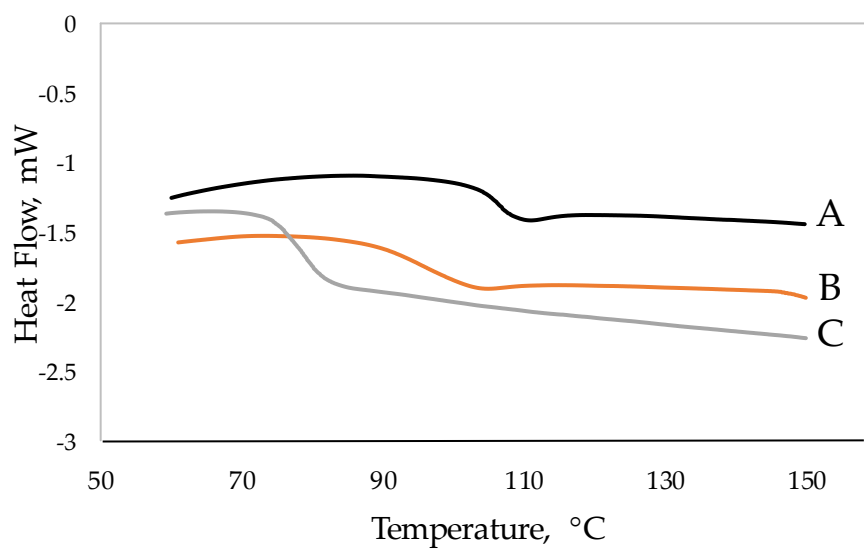


Figure S6. DSC thermograms of PSt-VBzGG-5 1 wt% SIPN (A), PSt extracted from PSt-VBzGG-5 1 wt% SIPN (B) and PSt-l-VBzGG-5 1 wt% (C).

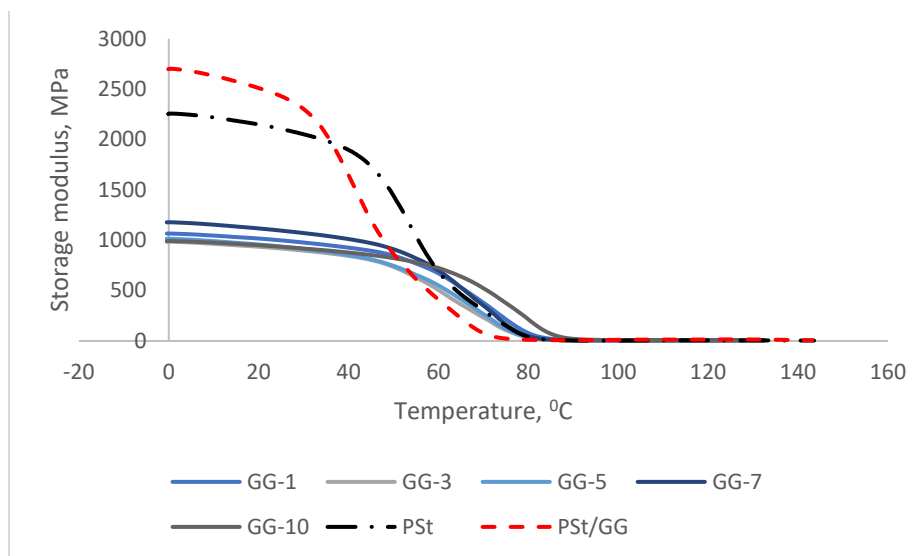


Figure S7. Storage modulus of PSt-VBzGG-m SIPNs (GG-1 – GG-10), PSt extracted from PSt-VBzGG-m SIPNs, and poly(styrene)/Gellan Gum physical mixture (PSt/GG).

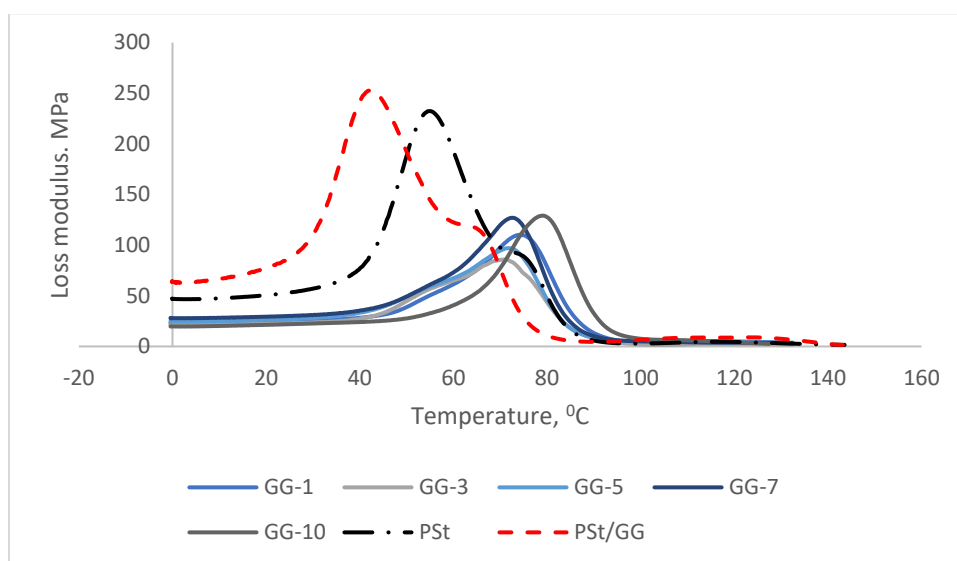


Figure S8. Loss modulus of PSt-VBzGG-m SIPNs (GG-1 – GG-10), PSt extracted from PSt-VBzGG-m SIPNs, and poly(styrene)/Gellan Gum physical mixture (PSt/GG).

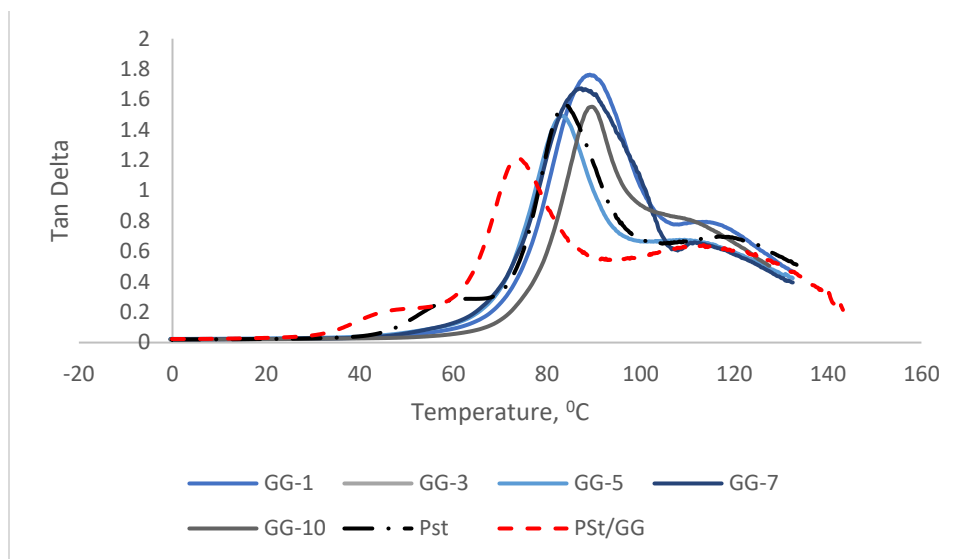
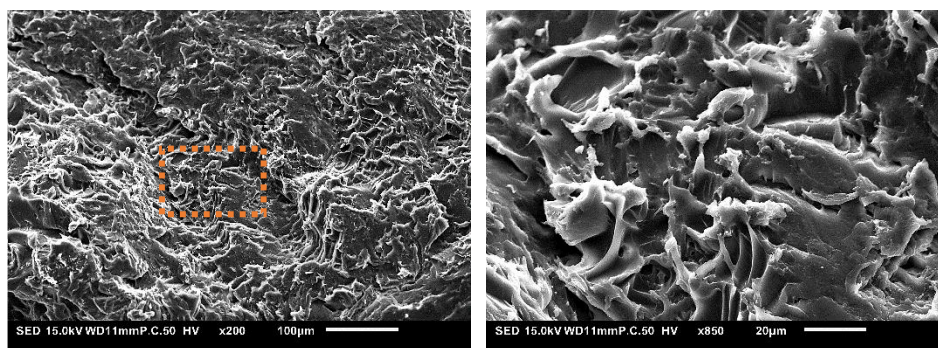


Figure S9. Tan δ curves of PSt-GG-m SIPNs, PSt extracted from PSt-VBzGG-m SIPNs (GG-1 – GG-10), and poly(styrene)/Gellan Gum physical mixture (PSt/GG).



(a)

(b)

Figure S10. SEM of a PSt-*l*-VBzGG-5 10 wt % gel swollen in water. (a) sample at 200 \times magnification; (b) orange-framed area in image (a) observed at 850 \times magnification.

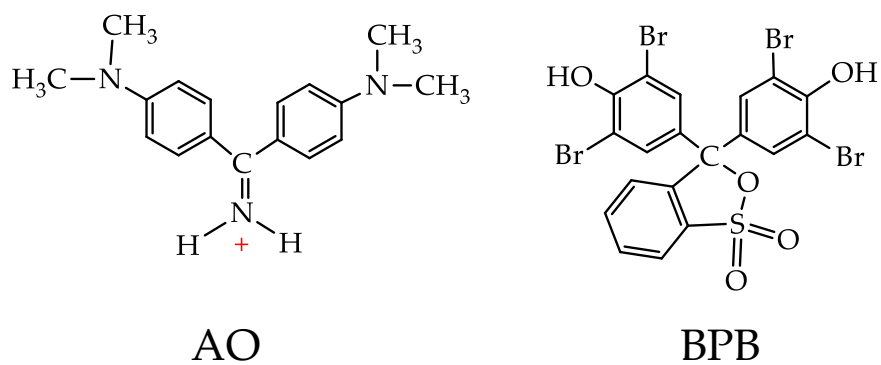


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