Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

**Microphase-separated structures within randomly end-linked copolymer networks** DI ZENG, RYAN HAYWARD, Univ of Mass - Amherst — Self-assembly within randomly cross-linked or end-linked copolymer networks provides a robust method to generate co-continuous nanometer-scale structures. Here, we investigate self-assembly within copolymer networks prepared by end linking of several different pairs of telechelic polymers in a common solvent. For sufficiently high levels of immiscibility between the constituent polymers, removal of solvent leads to microphase separation into disordered nanoscale structures. Using a variety of characterization methods, including transmission electron microscopy, small-angle X-ray scattering, differential scanning calorimetry, and dynamic mechanical analysis, we find that these networks exhibit co-continuous morphologies over a wide range of volume fraction of the two components, with a characteristic length scale that can be tuned by adjusting the molecular weight of the starting polymers.

Di Zeng
Univ of Mass - Amherst

Date submitted: 06 Nov 2015 Electronic form version 1.4