## Abstract Submitted for the MAR08 Meeting of The American Physical Society

Effective removal of entanglement points by network dilution JOSHUA D. MCGRAW, KARI DALNOKI-VERESS, Department of Physics & Astronomy and the Brockhouse Institute for Materials Research, McMaster University — A polymer system in which the chains are much longer than the entanglement molecular weight,  $M_+ \gg M_e$  is well entangled. When a thin polymer film is uniaxially strained below the glass transition temperature crazes are formed. Measurements of the volume fraction of the deformed versus the undeformed regions can give information on the entanglement density of the system<sup>1</sup>. We present results of such deformation experiments, probed using atomic force microscopy, in which well entangled networks have been diluted with chemically identical species of molecular weight,  $M_- \ll M_e$  which results in a decrease in the entanglement density. Varying the length of the diluent chains provides molecular information on how the entanglement network is swelled.

<sup>1</sup>ACM Yang, EJ Kramer, CC Kuo, SL Phoenix, Macromolecules 19 2020 (1986)

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