Ultrasoft elastomers near gel limit

Li-Heng Cai,[a,†] **Thomas E. Kodger,**[a,†] **Jacqueline Flood,**[a] **and David A. Weitz** [*a]

Abstract: Modulus of an elastomer near gel limit

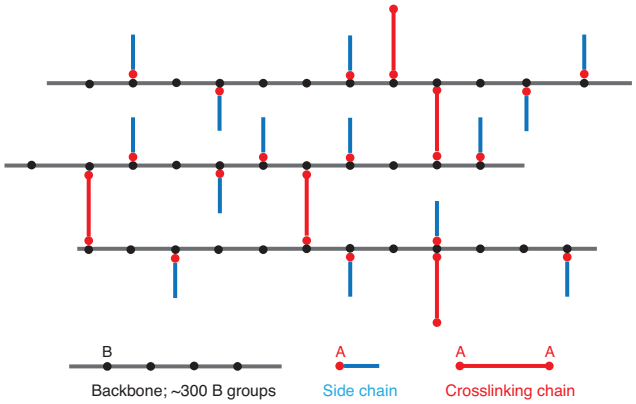

Fig. 1 cartoon

Acknowledgment. We acknowledge financial support from the National Science Foundation under grants CHE-0911588, DMR-0907515, DMR-1121107, DMR-1122483, and CBET-0609087, the National Institutes of Health under grants R01HL077546 and P50HL107168, and Cystic Fibrosis Foundation under grant RUBIN09XX0.

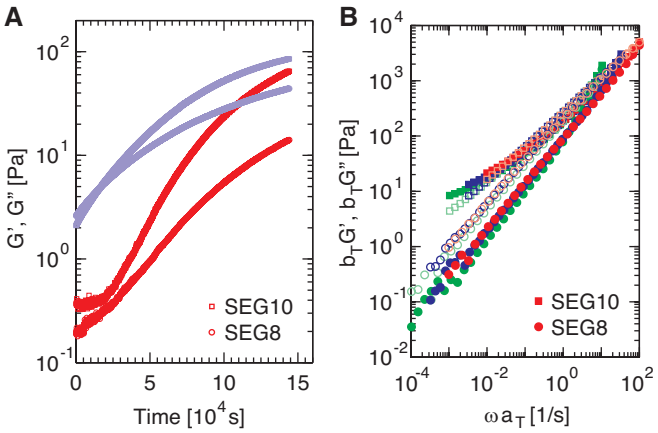

Fig. 2 Determine the gel limit of soft PDMS elastomers by reducing the number of ratio of backbone polymers and side chains. (A) Time-sweeps to monitor the polymerization of samples with backbone polymer and side chains of number ratios nbb:nsc=1:10 (SEG10) and nbb:nsc=1:8 (SEG8). (B) Frequency dependence of the storage (G, filled symbols) and loss (G, empty symbols) of different samples obtained by classical time-temperature superposition shifts. The reference temperature is -20 oC and the measurements are performed at -20oC (red), 20oC (blue) and 80oC (green). The shifting parameters are the same for all samples: aT = 1/9.5 for 20 oC and 1/3 for 80 oC; bT = 253/T, in which T is the absolute temperature.

[a]*School of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts 02138, United States.* [†]*These authors contributed to the work equally.* [*]*Correspondence: weitz@seas.harvard.edu*

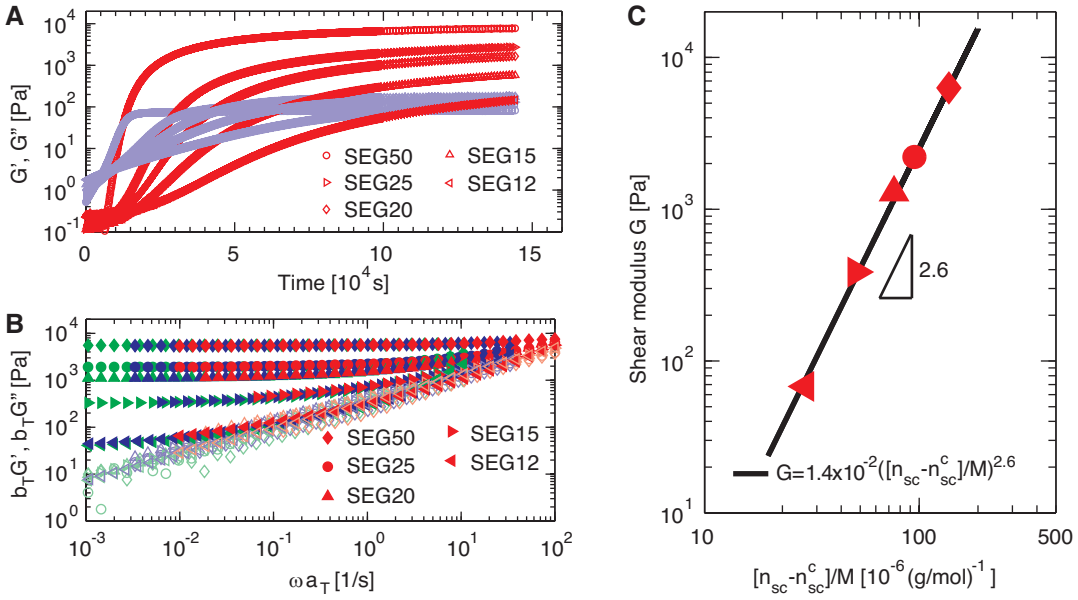

Fig. 3 cartoon