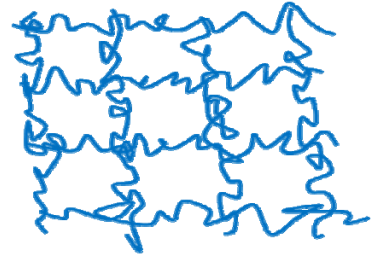


Poly(ethylene glycol) Hydrogels with Novel Network Structures

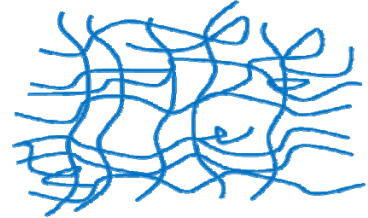
Hydrogels have been materials of great interest for biomaterial applications due to their many attractive qualities, such as their high water content, porous gel network and the ability to manipulate their mechanical properties.

Unfortunately, many of the cross-linking techniques used today result in the formation of hydrogels with inhomogeneous networks, making the physical properties (i.e. elastic modulus, degradation, drug release profile) of these systems difficult to predict and tailor to meet the needs of specific *in vivo* applications.

Greg Tew's research group at UMass Amherst has developed a novel cross-linking technique for the formation of poly(ethylene glycol) (PEG) hydrogels with homogeneous networks. In collaboration with their group, the Bhatia lab has investigated the network structures of these hydrogels through a series of small-angle neutron scattering (SANS) experiments. The obtained results reveal the formation of unique network structures that may prove advantageous for many biomaterial applications.



Homogeneous network



Network with inhomogeneities