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Abstract

We discuss the use of dynamic light scattering based particle micro-rheology to probe the lengthscale dependence of the microstructures formed by Fmoc-tyrosine gels. Past studies on these systems using dye diffusion have shown that Fmoc-tyrosine is capable of forming gels that can entrap molecules if they are large enough, unlike those gels formed by Fmoc-phenylalanine[1]. This result seems at odds with microscopic studies of the gel microstructure, which indicate porosity on much larger lengthscales than the molecular probes used. Here, we use particle probe based micro-rheology to investigate the porosity of the gels on larger lengthscales than is possible using molecular diffusion studies and show that there is considerable evidence of larger scale structures present in the gel. In particular we see that at no point does particle probe based micro-rheology reproduce the bulk properties of the gels, and also that there is strong dependence of the probe behaviour on particle size. Both of these results indicate the presence of microstructural features in the gel that are of the order of the particle size.