

The Physics of Soft and Biological Matter

P.30 Tunable reversible hydrogels from metal-coordinated polymers

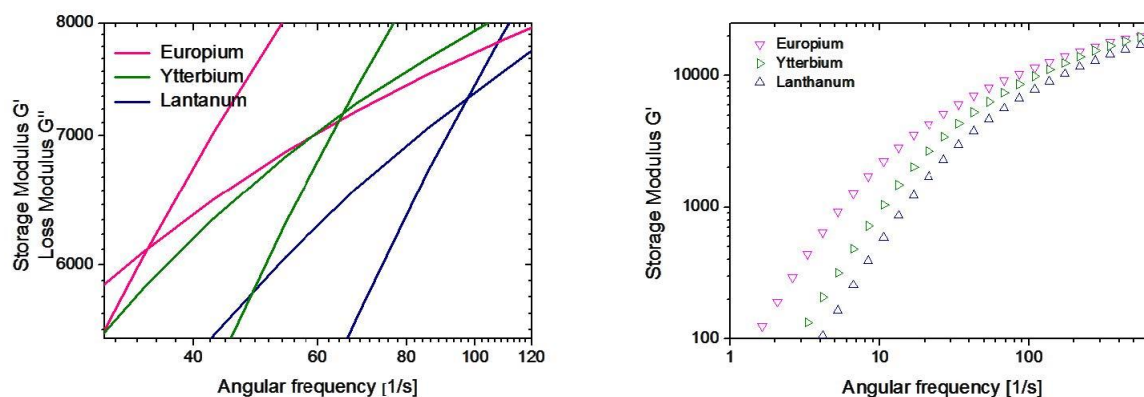
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Here we present preliminary results of a systematic characterisation of a novel reversible and tuneable hydrogel materials formed by metal-coordinated linear polymers. These self-organizing structures have seen enormous innovation in recent years and they combine features of conventional polymer systems with electrochemical properties of metal-ligand complexes.

We use terpyridine-modified high-molecular-weight telechelic polymers, which in the presence of transition metal ions form linear supramolecular chains[1].

As the goal of this work is to form organometallic networks, the next step is to introduce lanthanide metal ions as an additional cross-linking elements[2]. In these systems, we can independently tune the degree of crosslinking, through changing the ratio between transition metal ions and lanthanide metal ions. Moreover, by choosing different metallic species we can tune relaxation time, which can vary from milliseconds to many days.



- [1] S. Schmatloch, U.S. Schubert, *Macromolecular Symposia* 2003, 199, 483-498
- [2] W. Weng, J.B. Beck, A.M. Jamieson, S.J. Rowan, *J. Am. Chem. Soc.*, 2006, 128, 11663-11672