

Environmental conditions and pressure affect the rheology of supramolecular polymers

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Supramolecular polymers are known to form strong and resilient gels which can uptake large amounts of solvent while exhibiting ease of processing and self-healing. Despite their widespread applicability, a fundamental understanding of their rheological behavior that would allow for a-la-carte molecular design is missing. Our collaborative efforts to contribute in this direction are based on the use of well-characterized systems and targeted experiments with support from simulations to address specific questions. In this presentation we discuss two types of supramolecular polymers in apolar solvents and address their tunable viscoelasticity at different levels of humidity, temperatures and pressures. To achieve our goal we use or develop appropriate experimental setups and protocols. We show how pressure and competing interactions alter the state and rheology of these intriguing materials.

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