Summer School on Polymeric Networks
for Sustainable Development

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Vitrimer viscoelasticity

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This lecture will focus on the analysis of the linear viscoelastic modulus of associative polymers, with particular emphasis on ionomers and vitrimers.

I will begin by introducing recent advances in molecular modeling of associative polymers, including the sticky Rouse/reptation models and reversible gelation models.

Next, I will discuss methods for analyzing the linear viscoelastic modulus in cases where time–temperature superposition does not apply.

Following this, I will describe how to extract key parameters such as sticker lifetime and the activation energy for sticker dissociation and reassociation from rheological data.

Finally, I will explore the thermodynamic features of various types of ionomers and vitrimers.