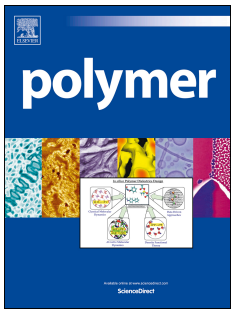
Accepted Manuscript



Influence of molecular properties on the mechanical fatigue of polystyrene (PS) analyzed via Wöhler curves and Fourier Transform rheology

Valerian Hirschberg, Lukas Schwab, Miriam Cziep, Manfred Wilhelm, Denis Rodrigue

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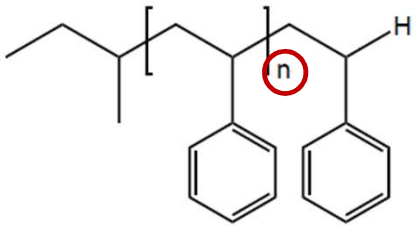
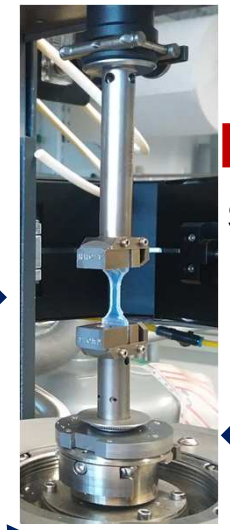
Polystyrene model systems
(via anionic polymerization)

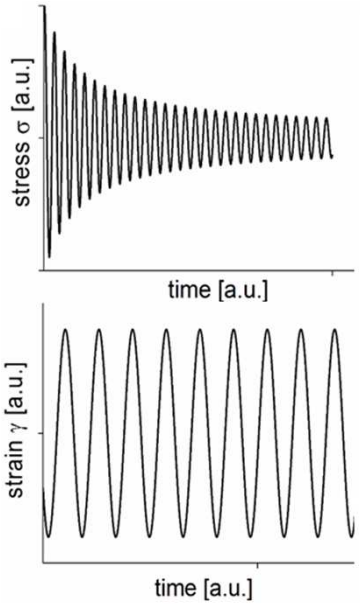


Influence investigated of:
M*, *PDI*, *MWD

Mechanical fatigue in torsion



σ
stress
γ
strain



Number of cycle to failure (N_f)
strain amplitude (γ_0)

Wöhler curve & Fourier transform of the stress

Continuous Analysis

$$\sigma = I_1\, e^{i\omega t} + I_3\, e^{3i\omega t} + I_5\, e^{5i\omega t} + \ldots$$

$$N_f = A\, \gamma_0^{-4.6}$$

$$A = A(M)$$