Relaxation Processes in Glass and Polymers

Lecture 1: Internet teaching set-up

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glass made of ideas

In the following, examples from the progress of relaxation research in glass will be shown in order to illustrate what relaxation is about. It is neither a comprehensive picture of the history of relaxation research nor a balanced assessment of the contributions of all individuals involved.

To illustrate glass properties, references will be made to different companies. These references have been picked arbitrarily for educational reasons, copyright issues etc., not to provide a balanced view of the achievements of different companies.

Despite its careful preparation, the manuscript may contain errors.

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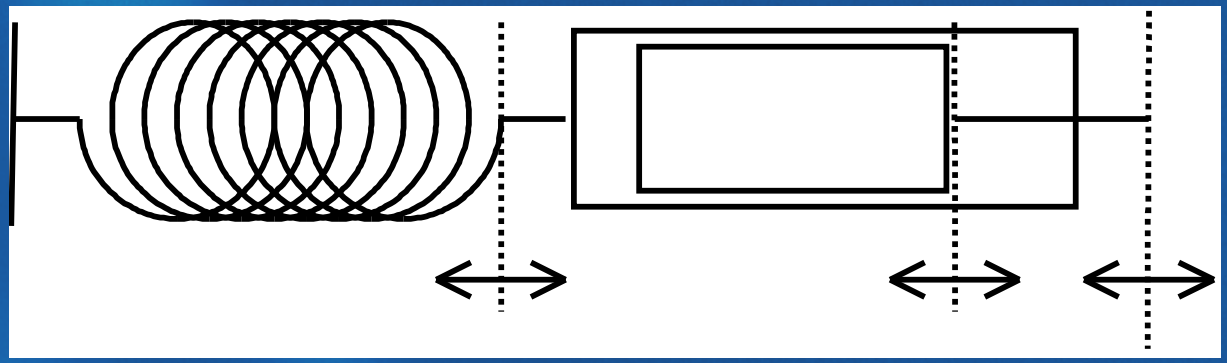
Among the first systems which habe been investigated for relaxation phenomena:

Glass thermometers

(Picture from Festschrift at the occasion of the 125th anniversary of Schott AG)

Maxwell model for shear stress relaxation:



Maxwell relaxation time

$$\tau = \eta / G$$

Some exercises:

1. If the viscosity is 10^{12}Pa·s and G is 25GPa, what is the value of τ?

Quiz:

1. Among the first systems investigated for relaxation were
    1. Glass dilatometers
    2. Glass reflectometers
    3. Glass miilimeters
    4. Glass thermometers