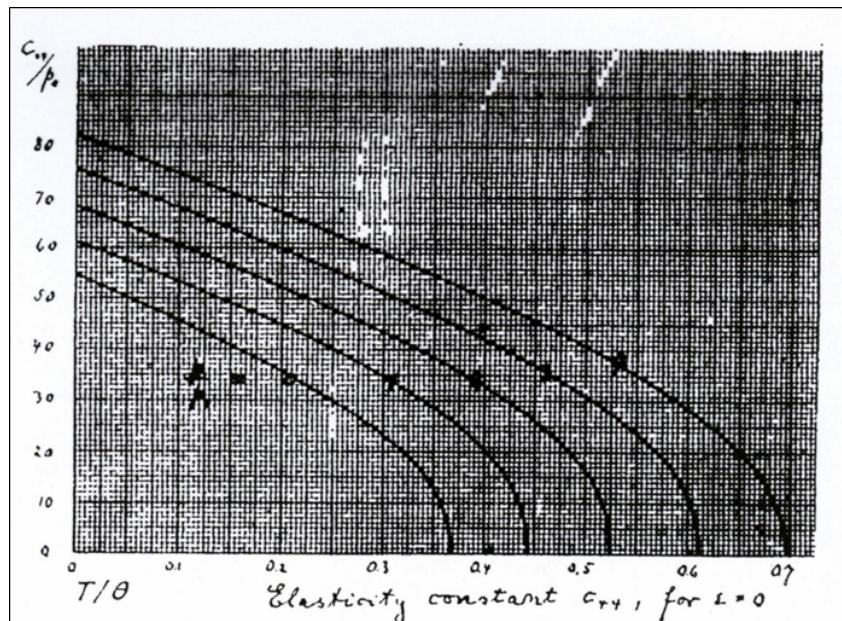


Glas – von einem alten Material zu moderner Physik

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Glass is a very old material that has been used for centuries, but is still the subject of current research. In this very special lecture an introduction in the material »glass« will be given for a general audience by showing some typical examples and properties. Then the focus will turn on the comparatively new subclass of metallic glasses and show some recent results on the dynamic mechanical properties of so called »fragile« and »strong« glass-forming liquids. These are the typical representatives of more than 30 metallic glass systems which are currently known and used in a variety of applications. A microscopic model for the macroscopic properties of these materials was recently developed in collaboration with W.L. Johnson's group at Caltech. The alpha- and beta-relaxation of the systems can be explained within the potential energy landscape picture and the local elastic modulus is measured using an acoustic AFM technique.