

# Aging dynamics and effective temperature in polymers and gels

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## Résumé

We first introduce the general features of aging and several experimental aspects of the aging dynamics. We briefly describe several experimental procedures, based on the response function, which have been useful to study memory and rejuvenation effects in various materials. The experimental analysis of the violation of the fluctuation-dissipation theorem in aging materials is presented. The fluctuation dissipation relation are measured on the dielectric properties of a gel (Laponite) and of a polymer glass (polycarbonate). For the gel it is found that during the transition from a fluid-like to a solid-like state the fluctuation dissipation theorem is strongly violated. The amplitude and the persistence time of this violation are decreasing functions of frequency. A very similar behavior is observed in polycarbonate after a quench below the glass transition temperature. In both cases the origin of this violation is a highly intermittent dynamics characterized by large fluctuations. The relevance of these results for recent models of aging are discussed.