



Polymers under Multiple Constraints

Kolloquium

Thursday,

20th September
2012

at: 5.15 pm

Hörsaal 3.07,
Von-Seckendorff-Platz 1,
06120 Halle

*Coffee will be
served from
4.45 pm!*

Prof. Dr. Klaus Schmidt-Rohr

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“Analysis of Chain Dynamics and Nanostructure in Polymer-based Materials”

An analysis of chain dynamics and ordering, as well as the local morphology, will be presented for two nanostructured polymer-based materials, based on NMR and scattering data. Nylon-6 in a nanocomposite with an inorganic glass is constrained to layers of thicknesses comparable to the crystallite dimensions. Selective NMR of the polymer near the organic-inorganic interface shows reduced crystallinity and mobility. In Nafion, a perfluorinated copolymer with a $(-CF_2-)_n$ backbone, NMR has provided insights into large-amplitude dynamics and orientational correlations of the backbone segments. The nanostructure of hydrated Nafion, the benchmark proton-exchange membrane material for H₂-O₂ fuel cells, has been analyzed based on an algorithm for calculating the small-angle scattering curve for any user-defined structure.