Polymers under Multiple Constraints

Polymer- & Soft-Matter-Seminar

Prof. Ralph Colby

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Tuesday, 29th October 2019

at: **5.15pm**

VDP 4 1.27,
Von-Danckelmann-Platz 4
06120 Halle

"Liquid Crystal Mesophases in Conjugated Polymers for Flexible Electronics"

A correlation of glass transition temperature with the molecular structure of conjugated polymers is presented that enables prediction of the structures needed to keep Tg well below ambient temperature for flexible electronics. Many of the highest mobility polymers have interesting LC mesophases that may enable more pi-stacking for superior intermolecular transport. We use a combination of linear viscoelasticity, X-ray scattering, DSC and polarized optical microscopy to identify LC mesophases and find that the entanglement molecular weight is 10-15 times larger in the nematic phase than in the isotropic phase, consistent with the lower viscosity in the nematic phase.