

Einladung zum ICP-Kolloquium (online)

via zoom <https://zoom.us/j/94333313628?pwd=SW9BY2hocE95Zm8vakF4L2JlY2dtdz09>
Meeting-ID: 943 3331 3628, Passcode: 983395

Auskunft: Dr. Alexander Schlaich, Tel: 0711 685 63607

Prof. Robert Hoy
University of South Florida

hält am

Donnerstag, 8. Juli 2021, 16:00 Uhr

einen Vortrag über das Thema:

“Relating the entanglement of semiflexible polymer melts to their local inter- and intra-chain structure”

Abstract:

Predicting the rheological properties of polymer melts from their microscopic structure has been a longstanding challenge. Several theories developed over the past 50 years accurately predict how quantities such as the plateau modulus G_N^0 scale with dimensionless parameters such as the ratio of Kuhn length to packing length (l_{kp}). However, these theories have limited ranges of validity and are mutually incompatible. We will discuss our efforts to resolve this issue by developing a unified theory for polymer entanglement that reduces to three previous scaling theories (Lin/Noolandi, Edwards/de Gennes, and Morse) in the regimes for which they were designed. Our theory also treats the crossovers between these regimes, and has been made quantitative by obtaining the relevant chemistry-independent prefactors using molecular dynamics simulations and topological analyses. It is consistent with the theory developed simultaneously and independently by Milner and Bobbili; the two theories are complementary in the sense that each explains things that the other does not. Finally, it agrees well with experiment, and is applicable to recently developed conjugated polymers which possess a melt rheology that cannot be explained by either the L/N model or the Morse model.

Interessenten sind herzlich eingeladen.

Prof. Dr. C. Holm
Apl. Prof. Dr. R. Hilfer
Apl. Prof. Dr. M. Fyta