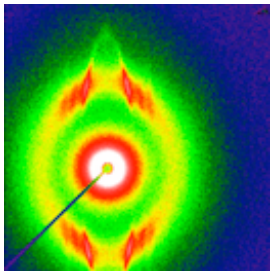

Contribution ID : **12** Type : **not specified**

Contr. Talk 6 - Dynamics and morphological fingerprinting of nano-filled polymer systems subjected to nonlinear deformations

Tuesday, 11 December 2018 09:40 (20)

Nonlinear deformations are a key ingredient for applications of rheologically complex materials, e.g. for the processing of polymeric materials stretching, orientation, dissentaglement of polymer chains occurs, with the interactions between flow field and constituents dictating the overall flow dynamics and subsequent material properties/performance. In this framework, we focus mainly on nano-filled suspensions and polymer composites in oscillatory and steady shear for a various nanofillers, e.g. graphene, nanocelulose etc.. Of particular importance is the analysis of the oscillatory shear stress output signal analysis in the framework of Fourier-Transform (FT) analysis and Tchebyshev polynomial decomposition. The effects of orientation dynamics and morphological fingerprinting are highlighted, with rheological percolation thresholds determined with superior sensitivity using nonlinear material parameters and nonlinear features hinting at the filler morphology of percolated network dynamic response.

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Session Classification : Early morning session - Polymers