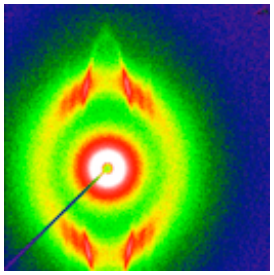

Contribution ID: **29** Type: **not specified**

Contr. Talk 4 - Linking transient shear profiles to the microscopic structure and dynamics in concentrated colloidal suspensions

Monday 10 December 2018 17:00 (20 minutes)

We performed start-up experiments with concentrated hard-sphere suspensions around the glass transition. Rheo-confocal experiments were carried out to link the macroscopic rheological response to the single-particle structure and dynamics. During the start-up of shear, suspensions of large particles (diameter ≈1.6μm) showed a transient non-linear velocity, resembling shear bands without a clear boundary. We performed a quantitative analysis to elucidate the correlation between the shear profile and microscopic properties, such as the local velocity, shear rate and volume fraction. They show a strong dependence on the position in the gap and hence indicate a significant heterogeneity. Based on the microscopic properties we propose a mechanism that leads to the transient non-linear shear profiles.

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Session Classification: Later afternoon session - Colloids