

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Non local rheology and near wall fluctuations in microgel jammed suspensions PATRICK TABELING, CHOONGYEOP LEE, FABRICE MONTI, MICHEL CLOITRE, ESPCI — We study flows of concentrated suspensions of soft nanoparticles in microchannels, over smooth hydrophilic and hydrophobic surfaces, using nano-PTV and μ PIV techniques. With hydrophobic walls, the flow curves are in good agreement with bulk rheology. With hydrophilic walls, substantial deviations from bulk rheology are observed. In the meantime, large velocity oscillations close to the wall are detected. We couple these observations by introducing a local rheology based on an energy barrier. As a whole, our work confirms the existence of non local rheological behavior in glassy systems.

Patrick Tabeling
ESPCI

Date submitted: 17 Nov 2011

Electronic form version 1.4