

Abstract Submitted  
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**X-ray investigation of colloidal glasses under shear**  
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Understanding glassification or dynamical arrest is one of the grand chal-  
lenges of material science and is a topic of great current interest. It is a  
central observation in soft matter systems as well as glass forming molec-  
ular systems that – with increasing density or decreasing temperature  
– the motion of the particles or molecules slows down and eventually  
becomes arrested. Understanding this dynamical arrest as well as relax-  
ations in the arrested state are fundamental problems, which to a large  
degree remain unanswered. We use a novel combination of rheological  
measurement and small angle x-ray scattering (at the synchrotron DESY  
in Hamburg) to study structure factor of dense suspensions under shear  
and during relaxation. The suspensions consist of silica particles 50nm  
in diameter. We observe clear changes of inter particles distances and  
configurations due to the different shear rates. Together with future dy-  
namic x-ray measurements we aim to develop a universal scale-bridging  
understanding of dynamic arrest.

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