

Commissioning of a shearing machine for soft matter samples

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Commissioning of a shearing machine for soft matter samples

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Shear rheology is a widely used technique in both research and industry for different kinds of materials, covering various applications. Nevertheless, hardly any practical system is available which is suitable to study low temperature behavior in situ using small angle neutron scattering experiments.

Our approach bases on vertical sandwich shear geometry, which allows examining rubber-like or soft matter samples.

The system is designed to reach high shearing rates while keeping the movement precision around 1µm. To obtain a maximum shearing force up to 300N a massive design was chosen.

A temperature range between -100 and +100 degree celsius was realized using a nitrogen gas flow based temperature control system.

In this talk we will show the development from the first design stage to the deployable machine and illustrate the problems we faced within the implementation of the system.

Formal Invitation Letter Required

No

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