



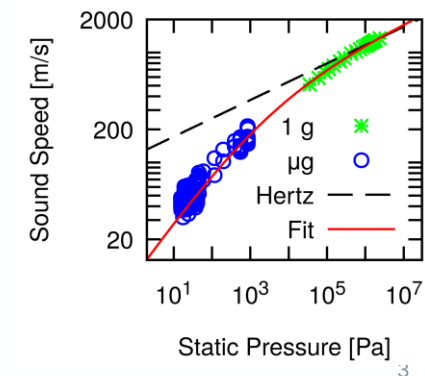
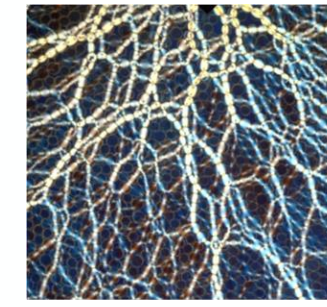
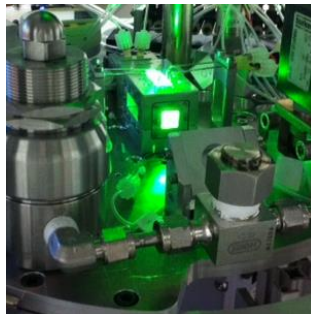
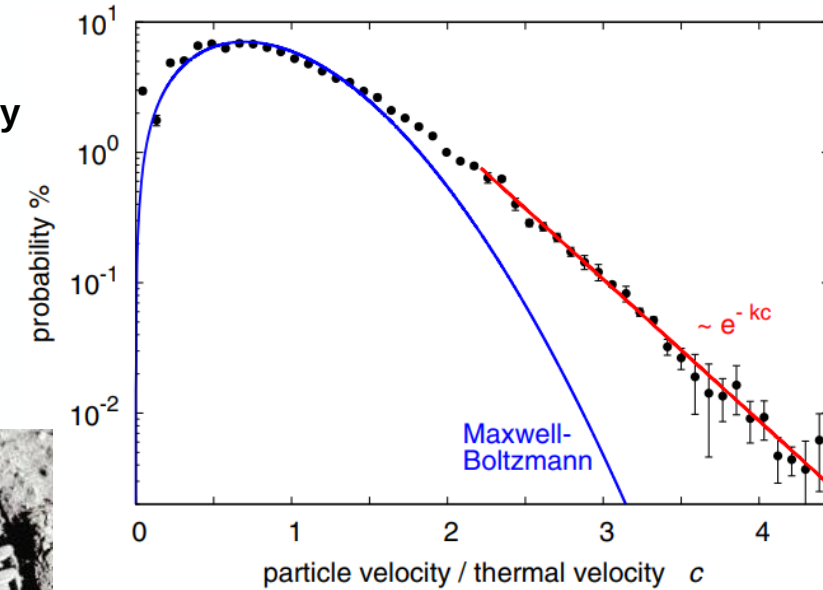
Light Scattering from Granular Media on Ground and in Space

Jan Philipp Gabriel, Christopher Mayo, Marlo Kunzner and Matthias Sperl

Granular Matter in Space

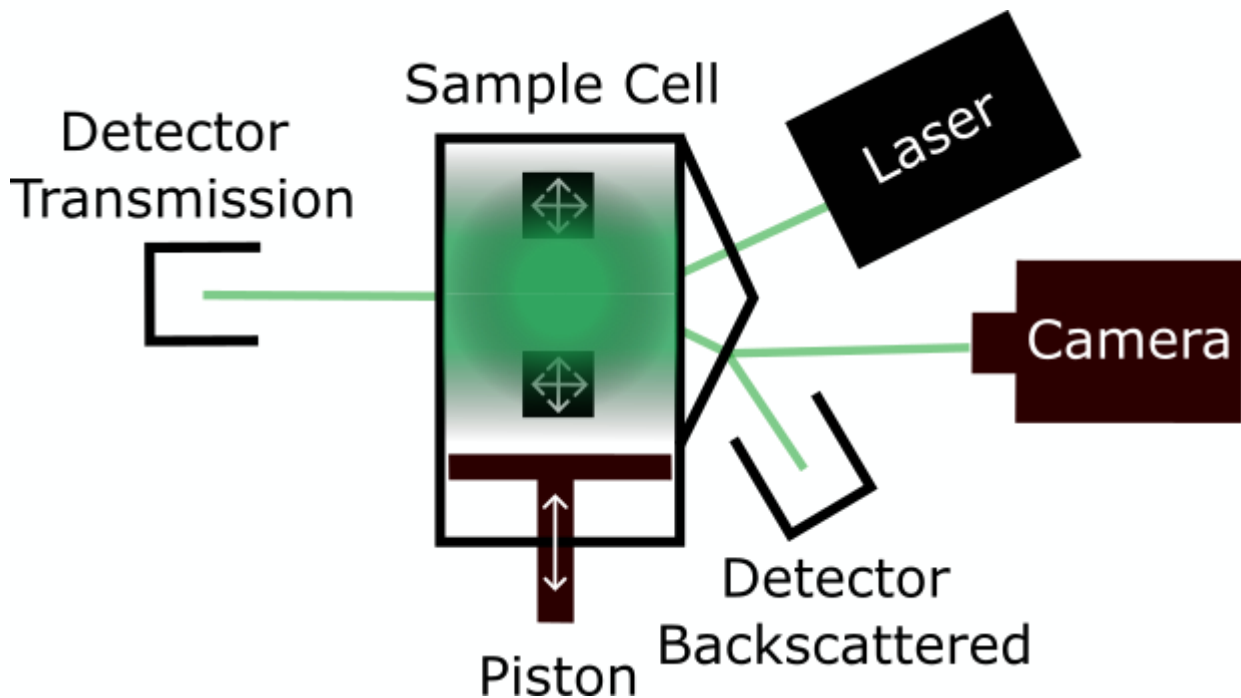


- Granular Gases, μg to counter **sedimentation**
→ sounding rocket; orbital platform; MEGraMa
- Granular Fluids, μg to counter **inhomogeneity and anisotropy**
→ light scattering: drop tower; parabolic flight; ISS, SoMaDy
- Granular packings, μg to counter **pressure gradients**
→ sound: ISS, GraSCha; VipGran: AIGE; rheology
- Applications of granular matter in space, e.g. **Moon**
→ Concrete Solidification (MASON), Sintering (RegoLight.eu)

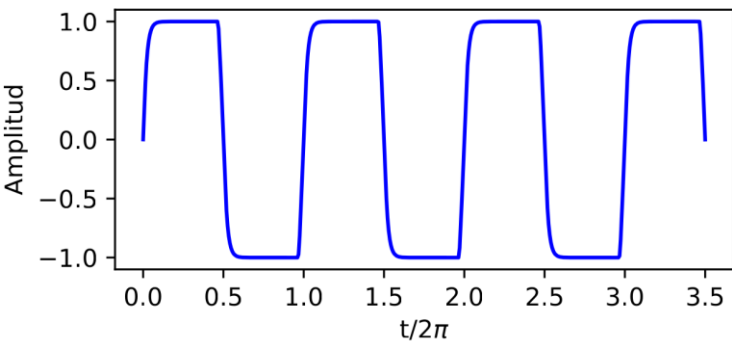




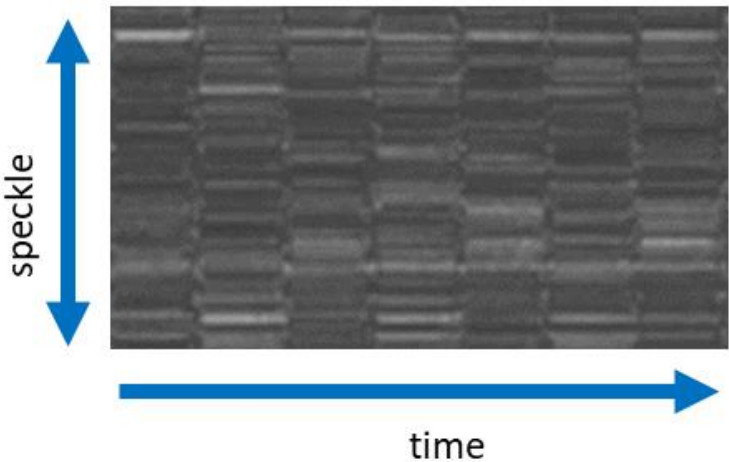
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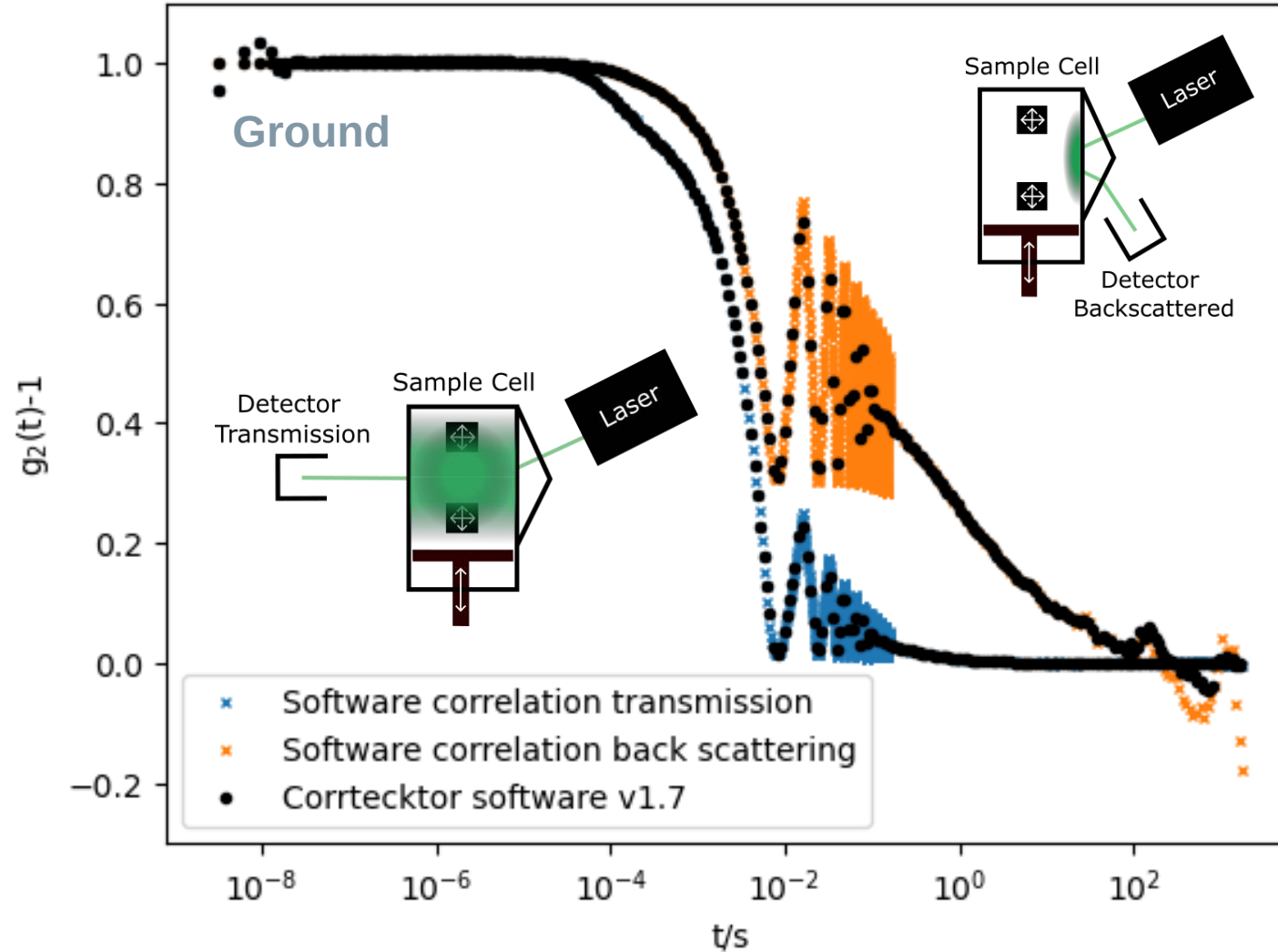
Agitation Profile



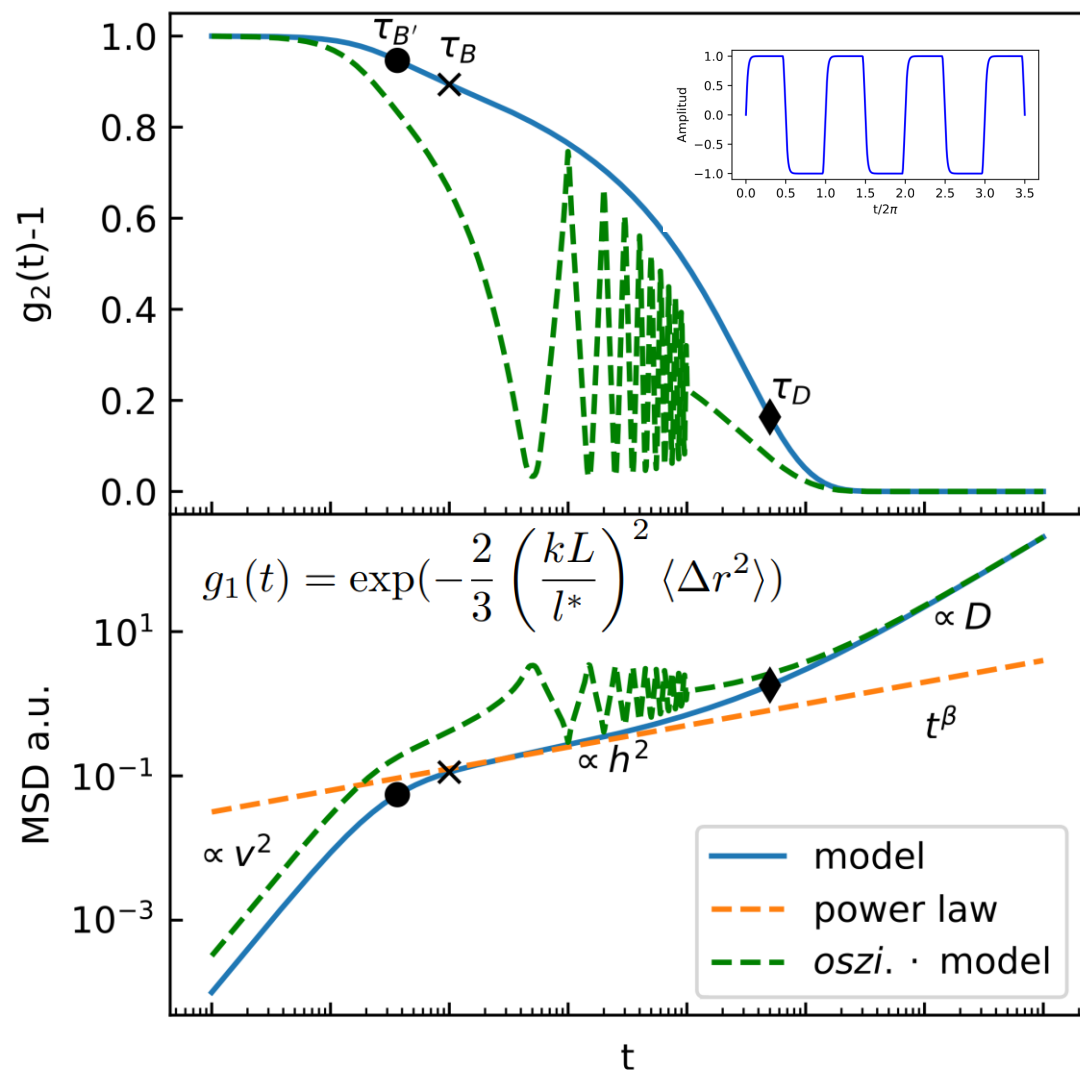
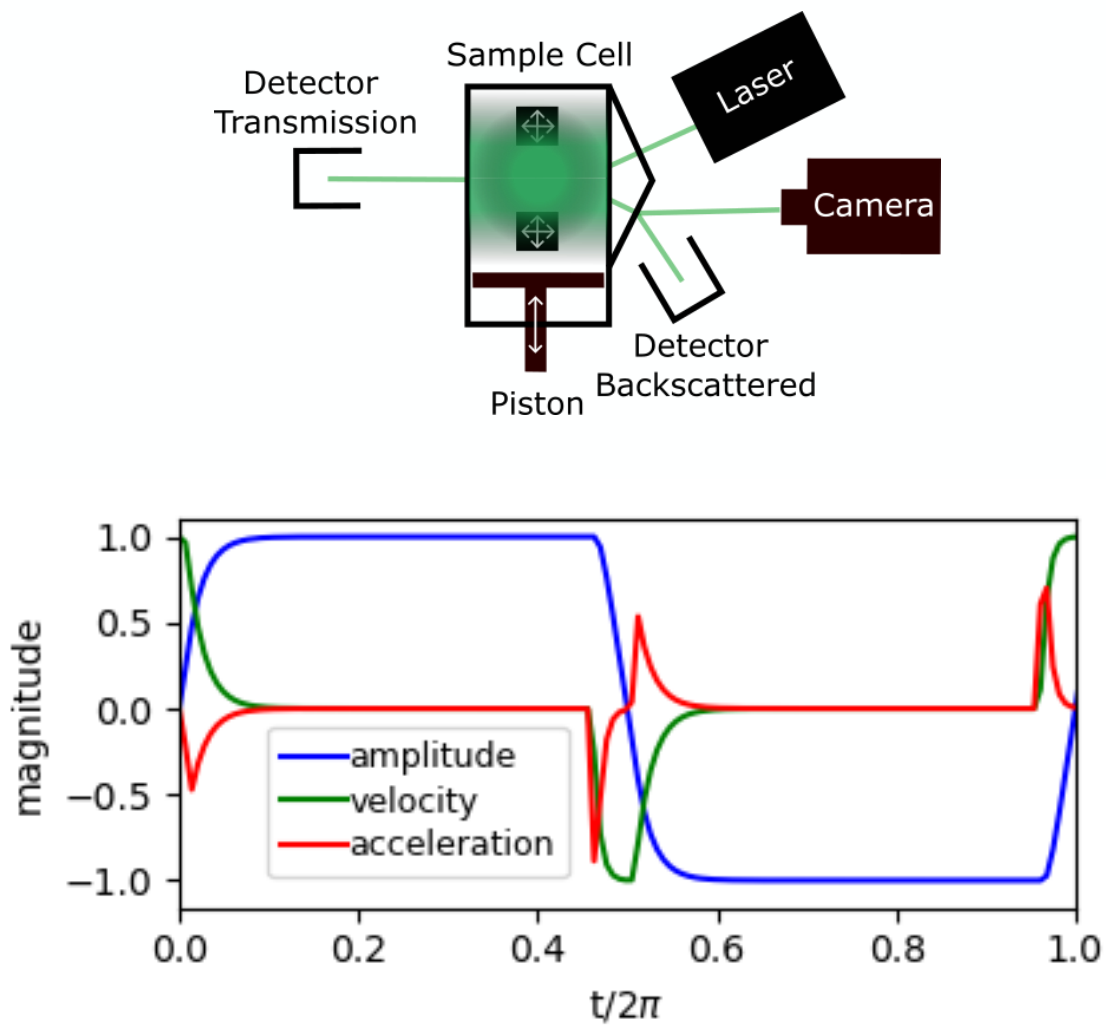
Line Camara Image

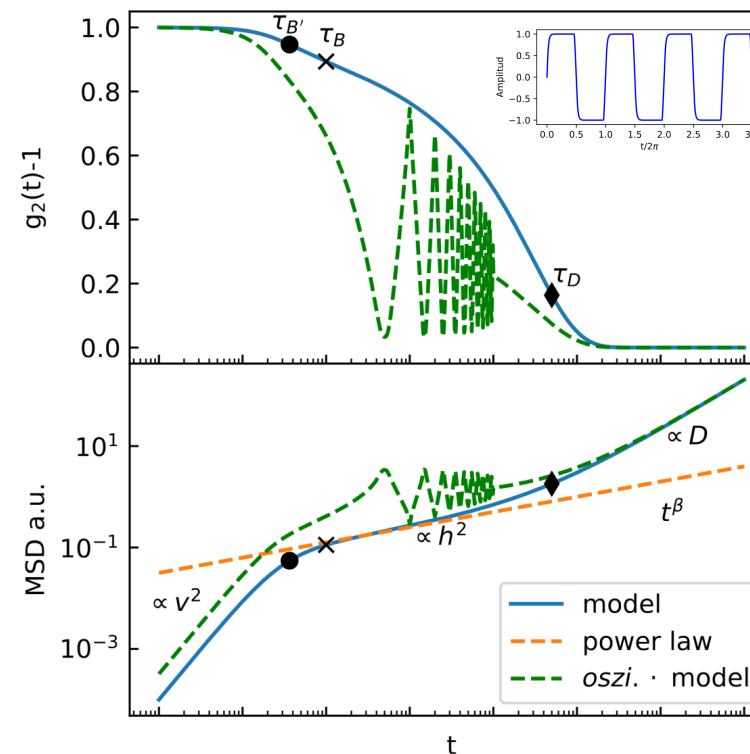
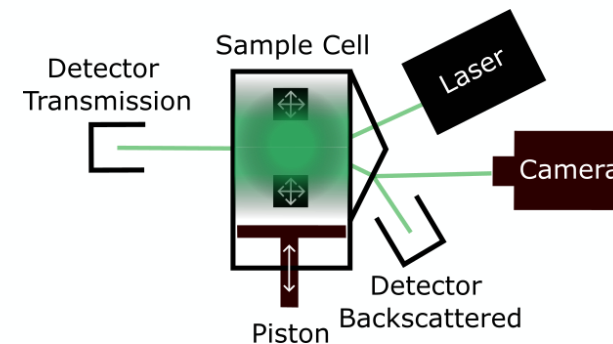


Transmission and Backscattering

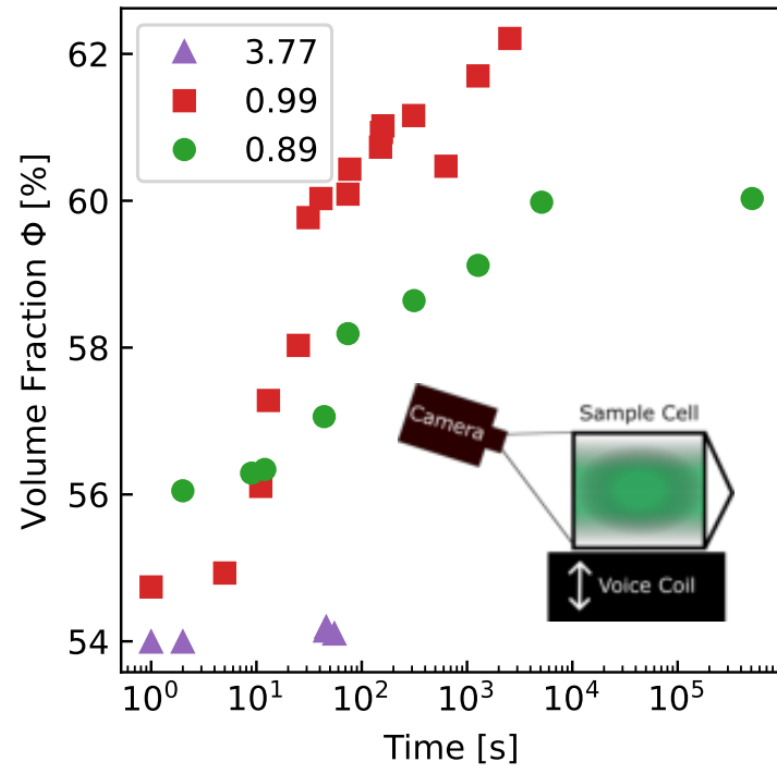


Modelling Piezo Agitation

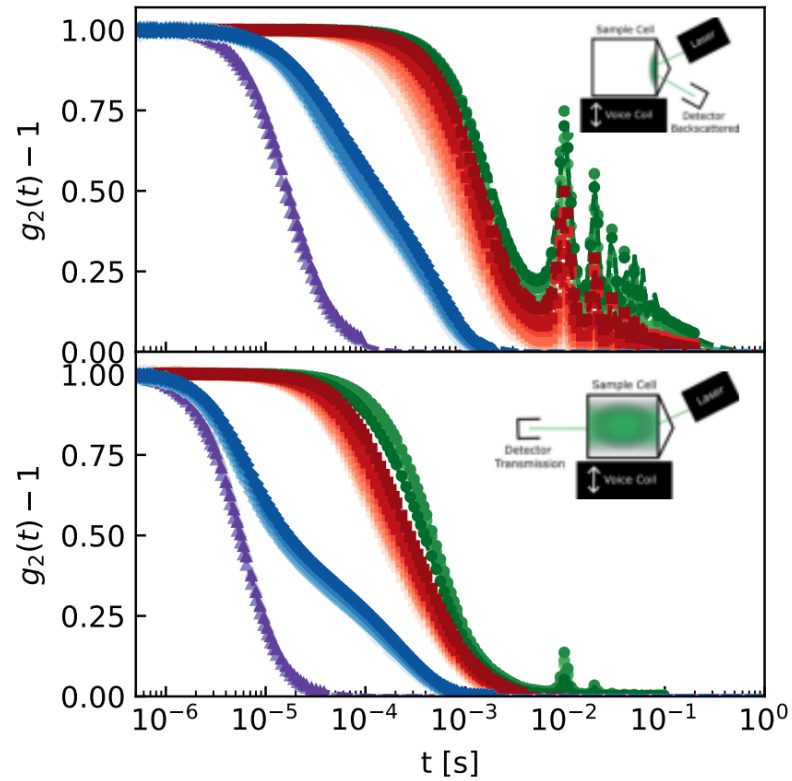




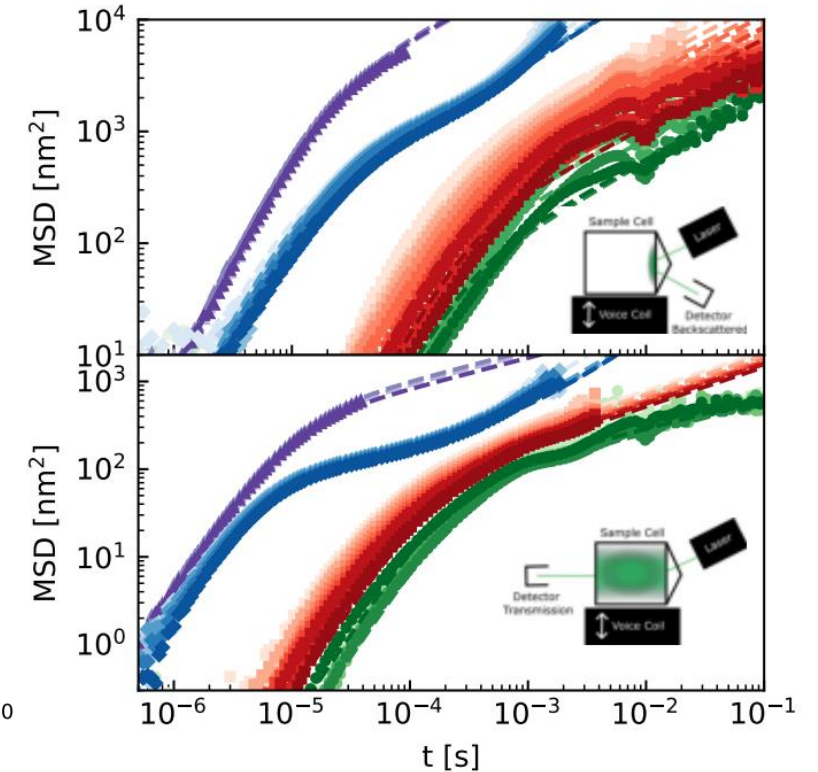
Compaction

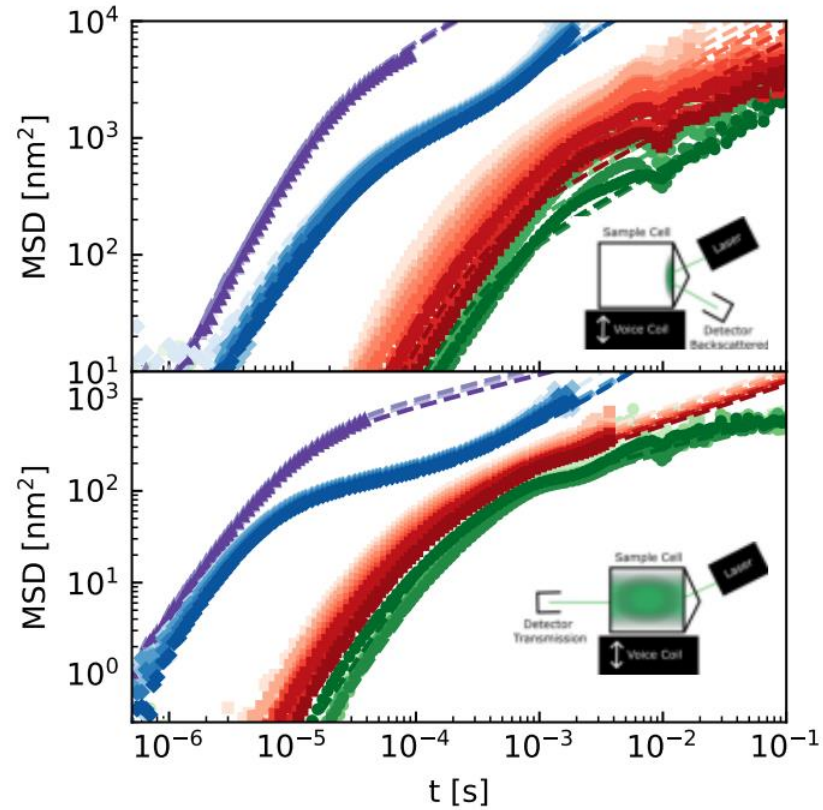


Correlation function

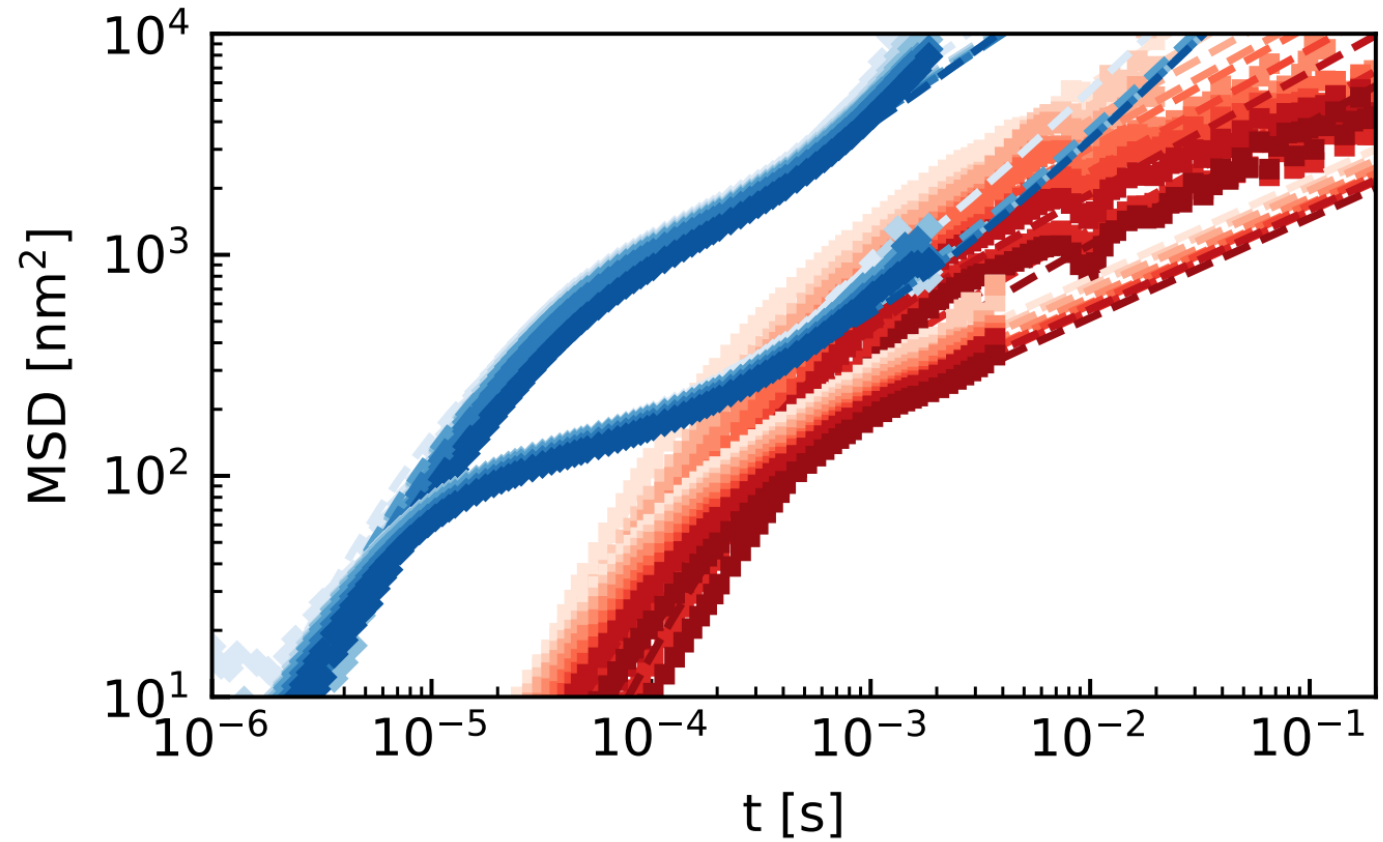


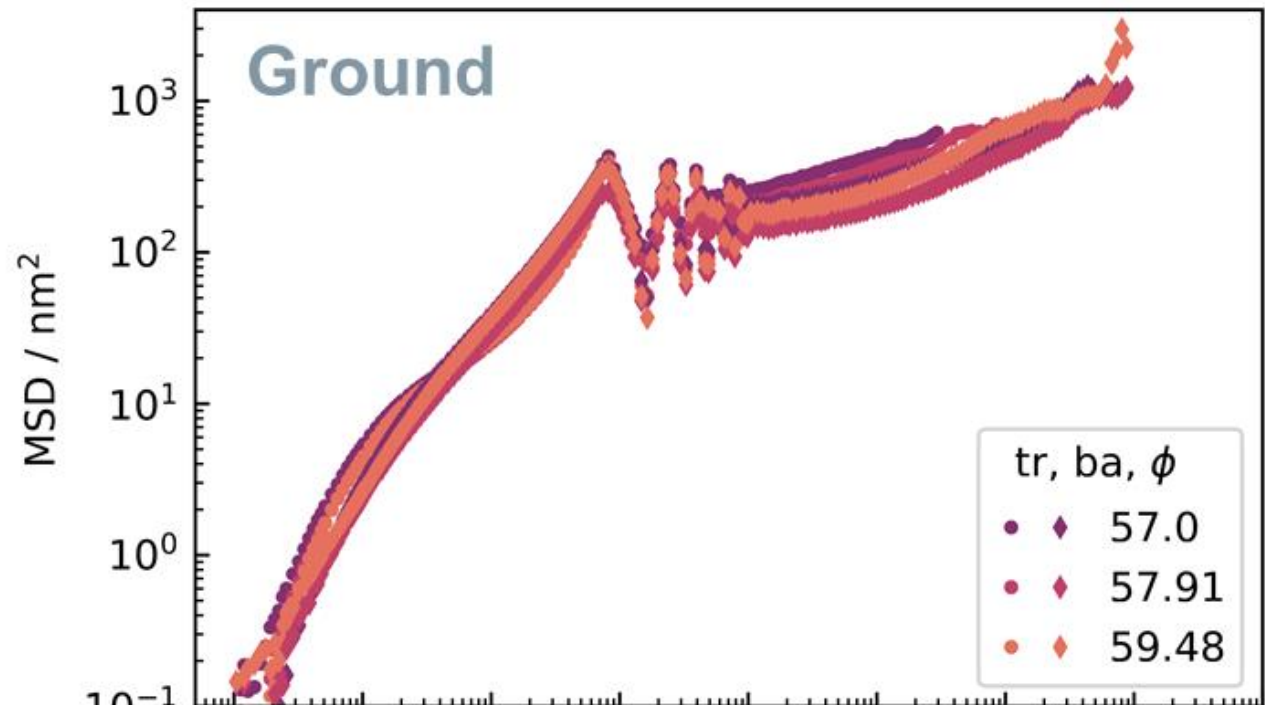
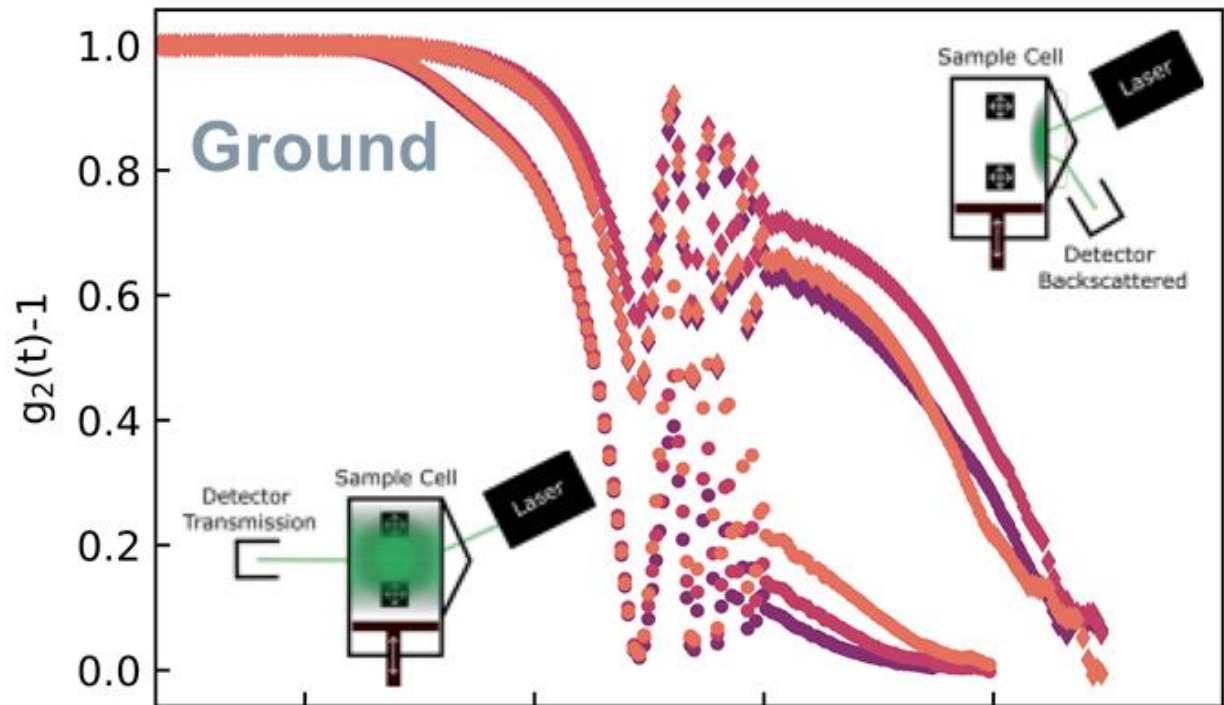
Mean squared displacement



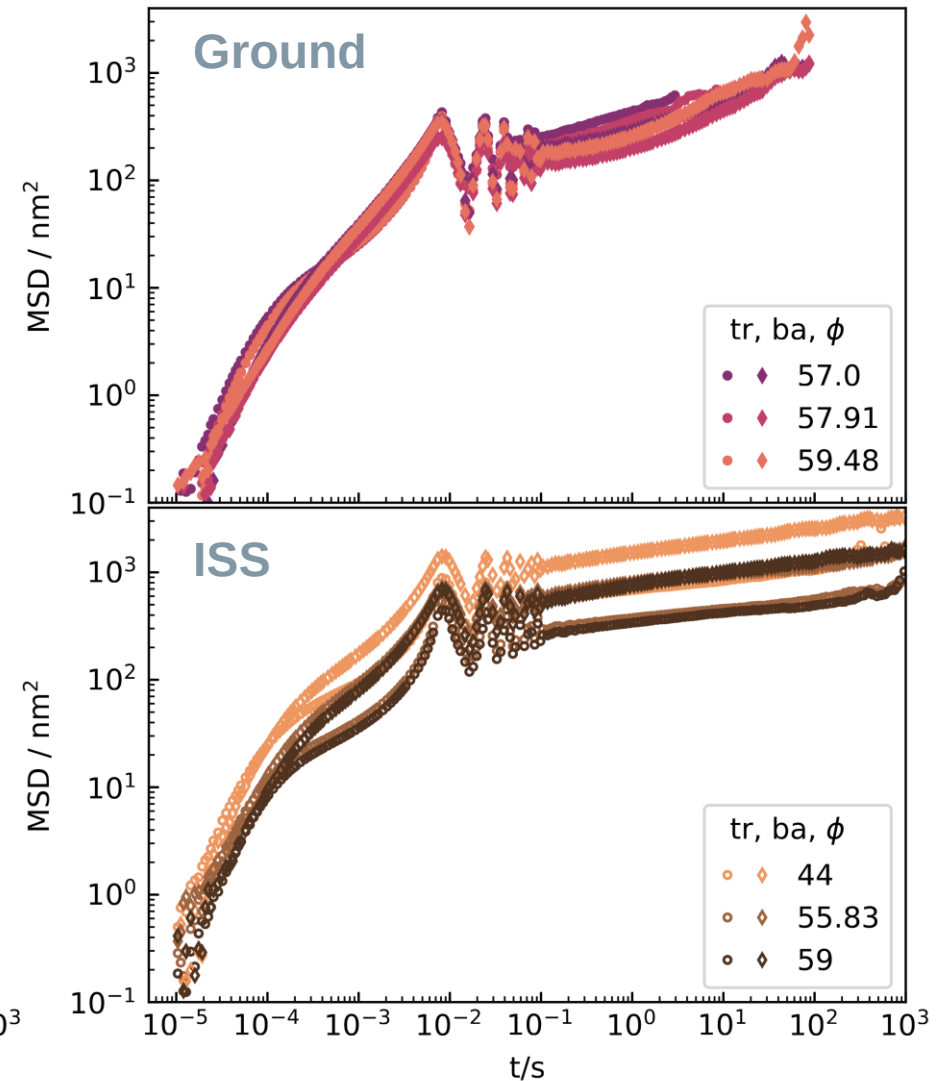


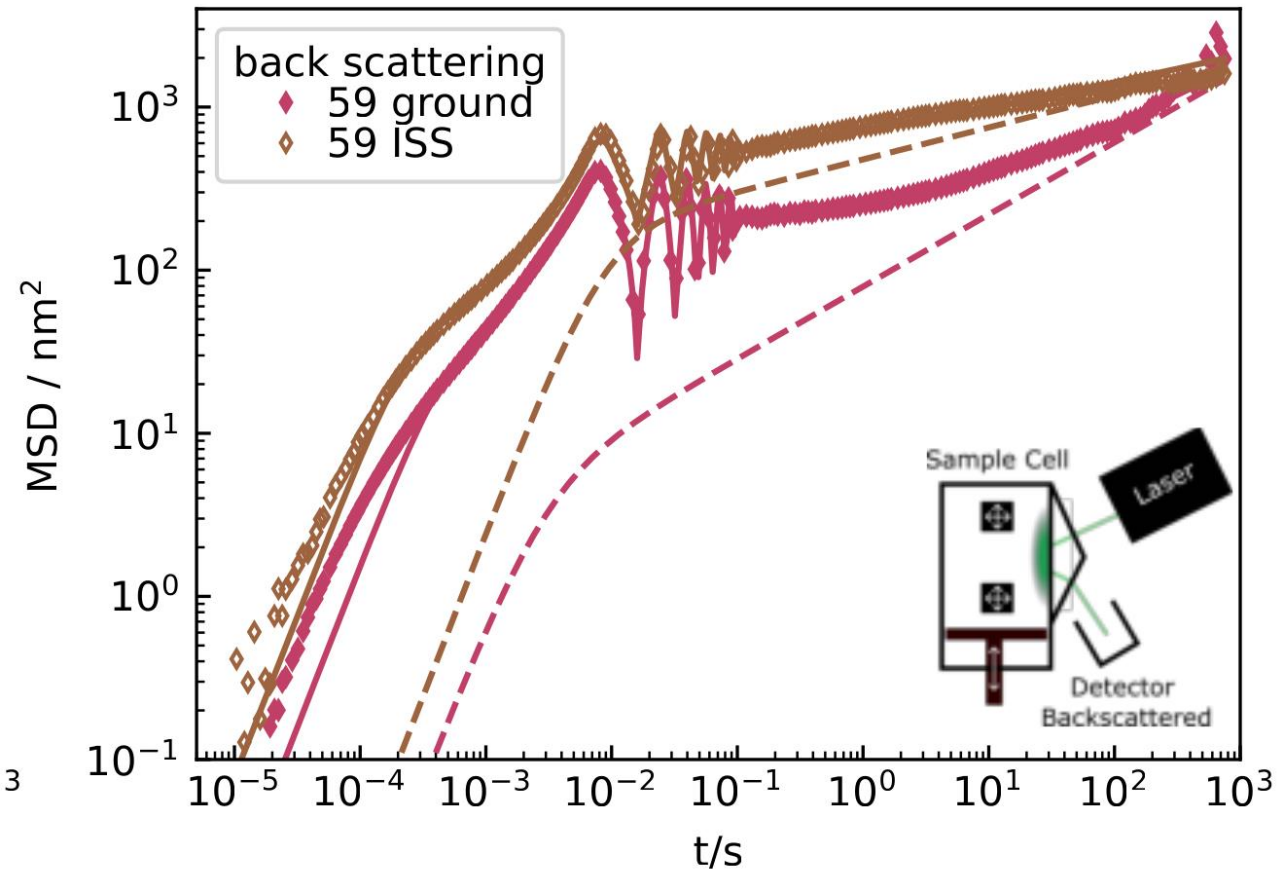
Heterogeneous Dynamics

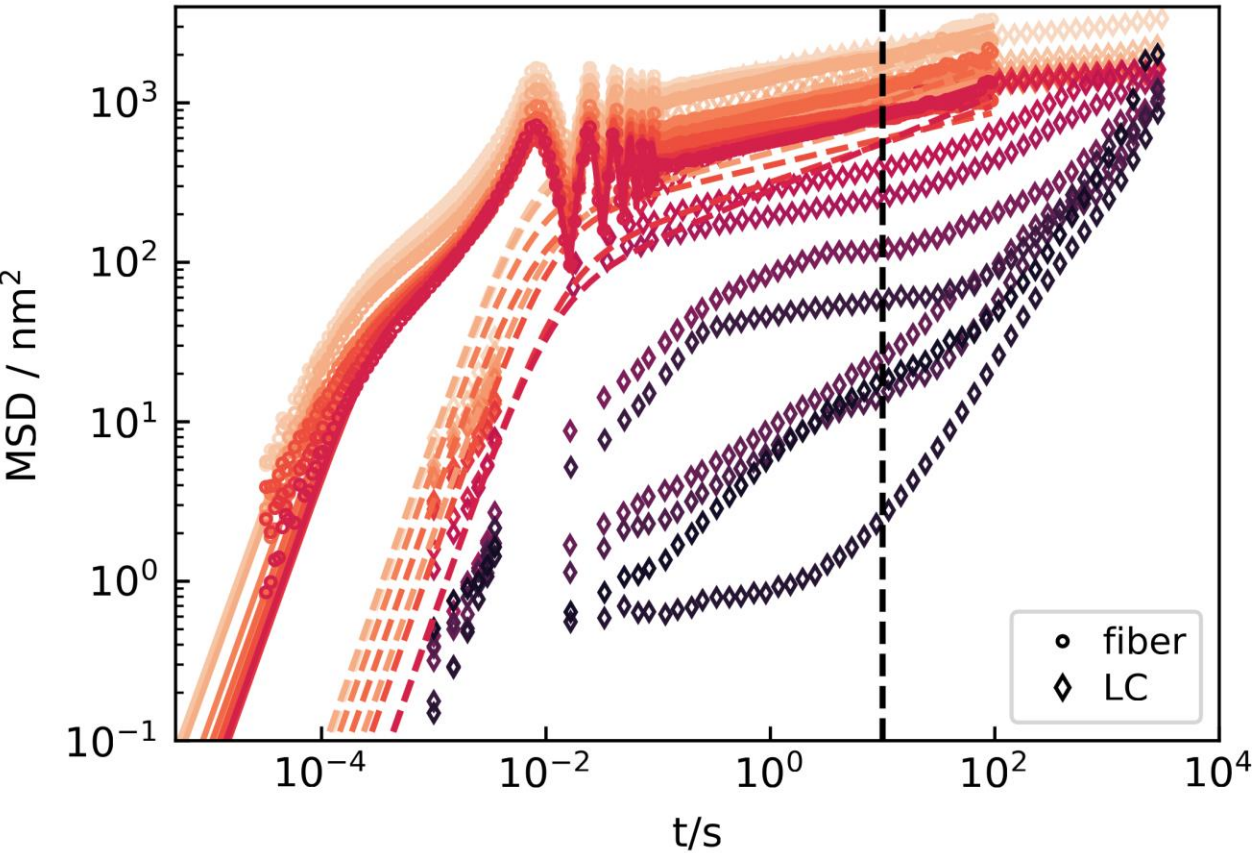
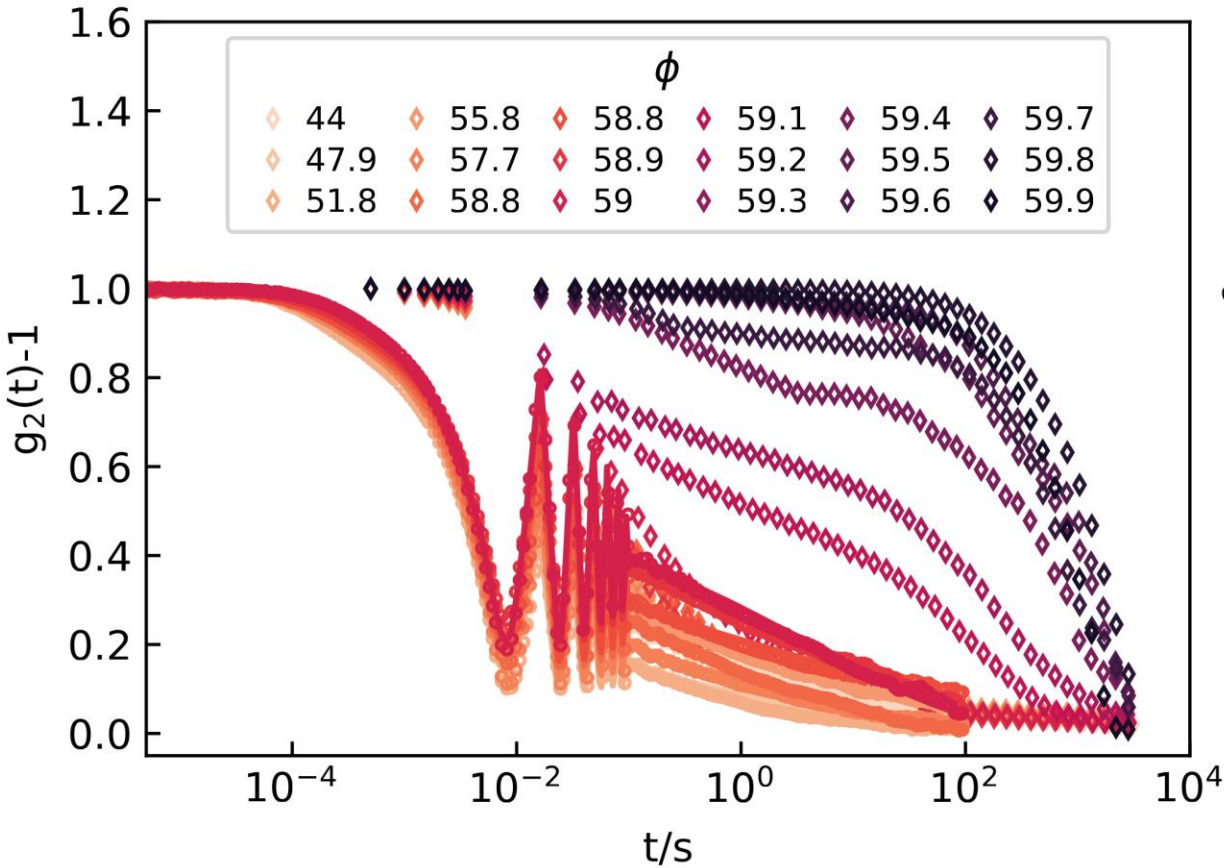


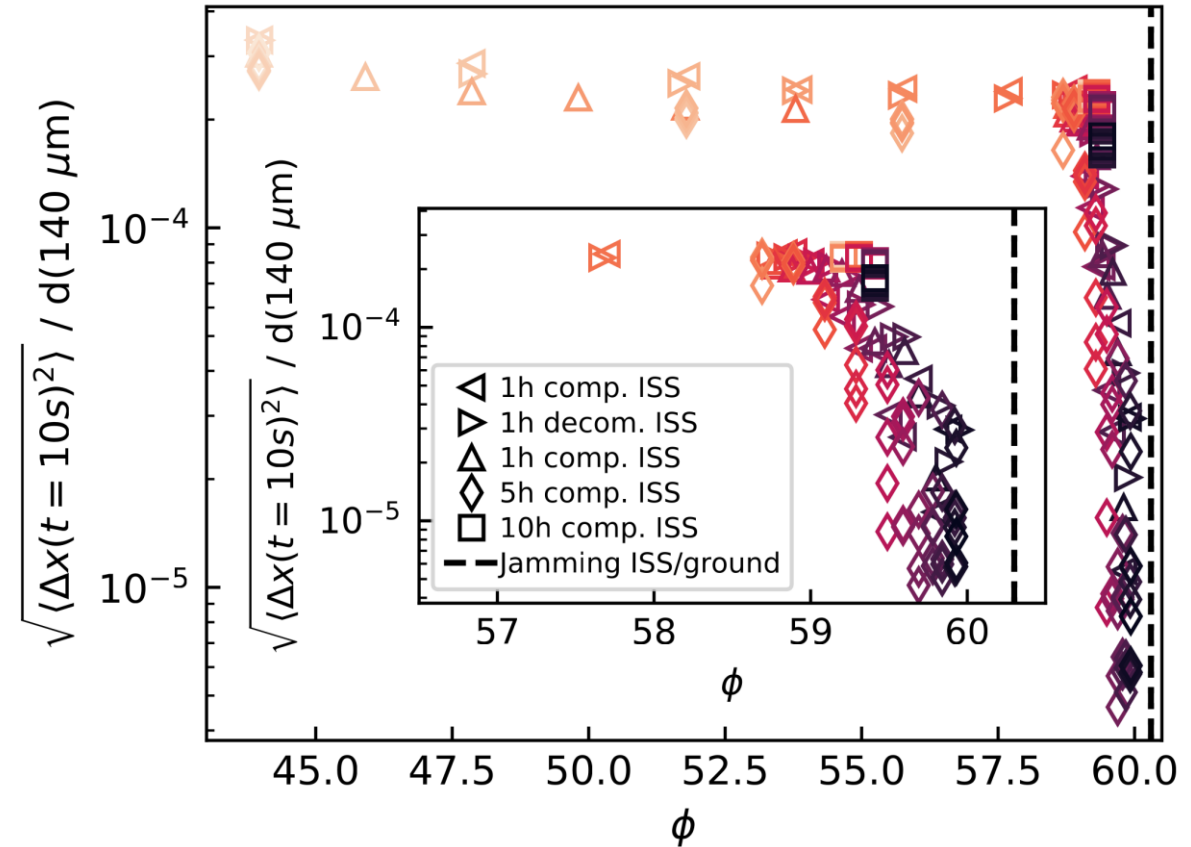






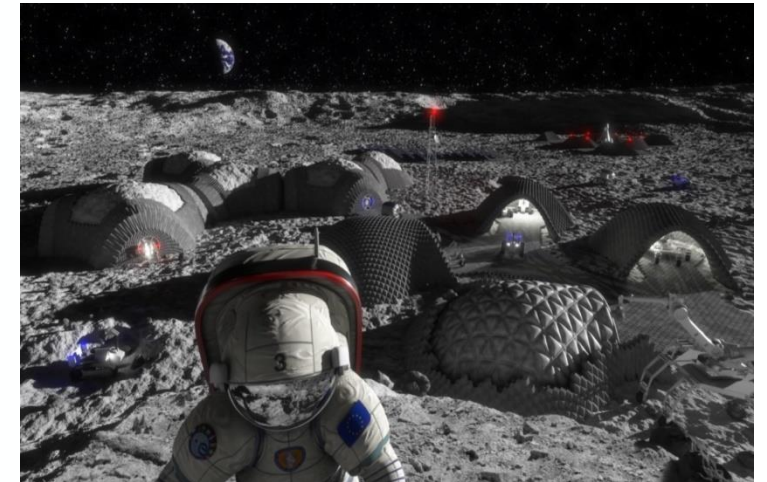




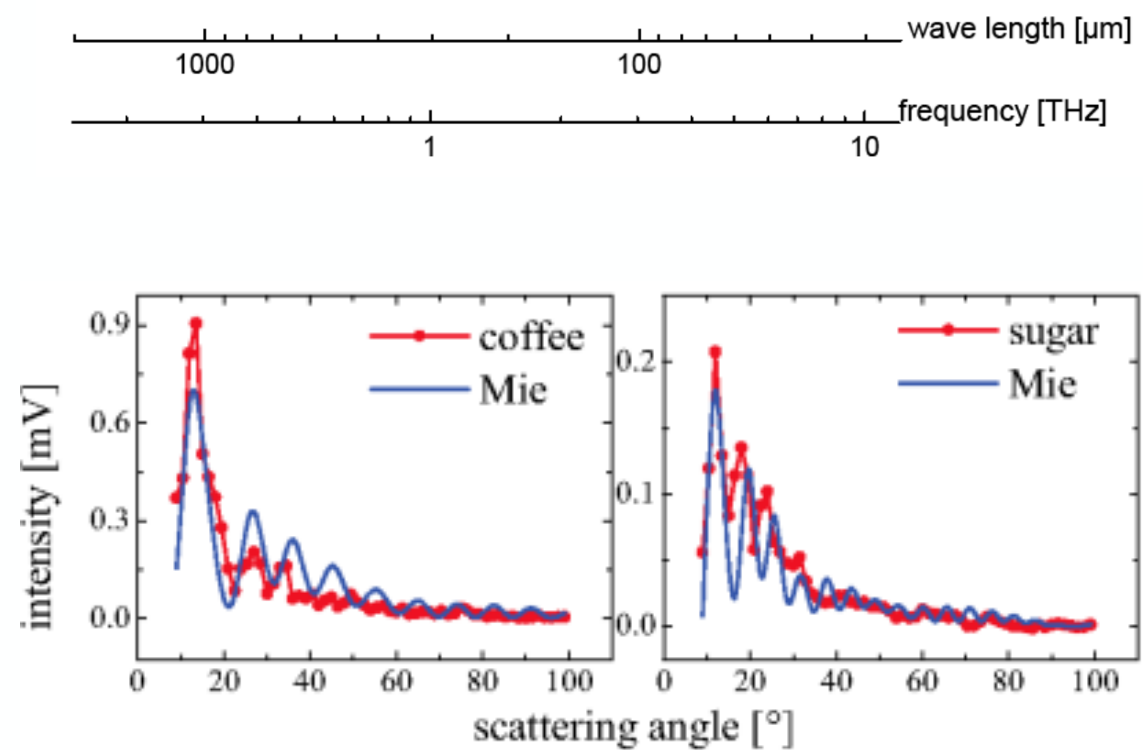




Moon

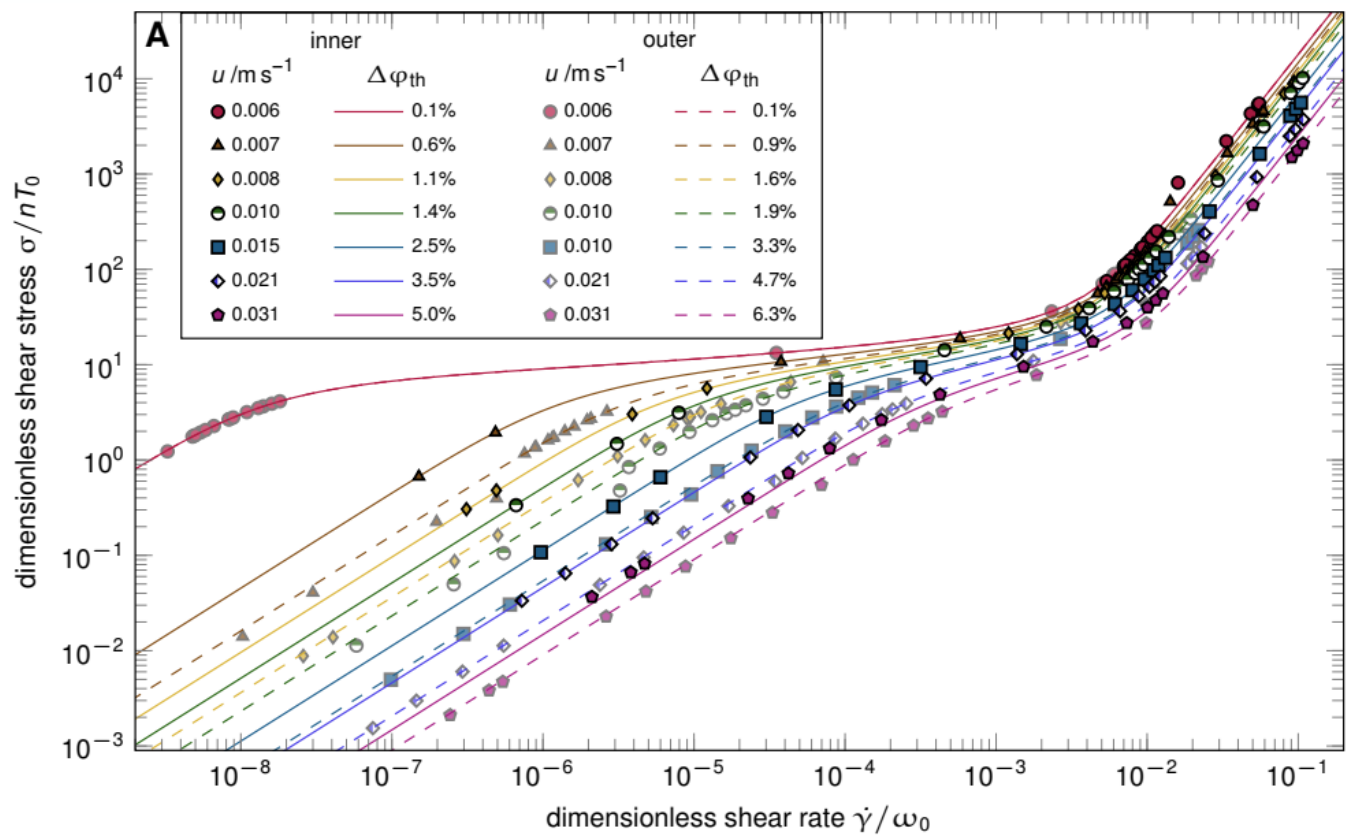


THz Light Scattering



Born, et al., EPL **106**, 48006 (2014); Patent DE102012219674A1 (2012/2014).

Rheology



D'Angelo, et al., <https://arxiv.org/abs/2309.00413>