

Abstract Submitted  
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**Understanding the dynamics of closely packed microgel particles**  
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University, WEITZ COLLABORATION — Soft particles such as microgel suspen-  
sions have important applications in industry, which exploit their unusual structural  
and rheological properties. Despite their relevance, the fundamental physics that con-  
trols their behavior remains poorly understood. Intriguingly, microgels act as fluid  
even at high density. Techniques such as rheology, microscopy, and light scattering  
have been used to probe the macroscopic properties of these materials – however,  
the underlying physical mechanisms demand further investigation. We use confocal  
microscopy to image the local dynamics of highly packed microgels. The gel par-  
ticles are tracked over time to obtain information about the short and long range  
correlations of the local particle motion. We probe their response to changes in  
environmental factors such as temperature or pH using light scattering. The re-  
sults obtained not only help us understand the origins of the observed macroscopic  
behavior, but also give us information on the dynamics of glassy arrest in general.

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