

Description of Additional Supplementary Files

Supplementary Movie 1. Fluid - plastic crystal - plastic glassy phase transitions. The movie shows images of a low volume fraction sample ($\phi \approx 0.002$) that has been centrifuged at 20g for 40 min. The movie was recorded 1.5 hours after centrifugation (this was enough time for part of the system to crystallize). The movie shows the phase behaviour upon gradual increase of the volume fraction. This was achieved by moving the field-of-view gradually closer to the bottom of the sample. The movie was recorded with 11 fps and the total time span of the movie is 202 s. The field-of-view is $58 \times 58 \mu\text{m}^2$. The movie shows a view of the xy-plane (perpendicular to gravity).

Supplementary Movie 2. Plastic glassy phase to crystal transition. An AC electric field (1 MHz, perpendicular to the field-of-view) was turned on slowly by hand (in ~ 5 s) to $E = 90$ V/mm. Crystalline regions slowly started to form. The movie was recorded with 2 fps and displayed with 8 fps. The total timespan of the movie is 500 s. The field-of-view is $66 \times 66 \mu\text{m}^2$. The movie shows a view of the xy-plane (perpendicular to gravity).

Supplementary Movie 3. Crystal to plastic glassy phase transition. After approximately 1 hour, the sample was completely crystalline, and the electric field ($E = 90$ V/mm) was turned off again. The crystal melted within minutes. The movie was recorded with 10 fps and displayed with 10 fps. The total timespan of the movie is 100 s. The field-of-view is $66 \times 66 \mu\text{m}^2$. The movie shows a view of the xy-plane (perpendicular to gravity).