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Shear-driven dynamic clusters in a colloidal glass CHRISTOPH EISENMANN, CHANJOONG KIM, JOHAN MATTSSON, DAVID WEITZ, DEAS, Harvard University, EXPERIMENTAL SOFT CONDENSED MATTER TEAM — We investigate the effect of shear applied to a colloidal glass on a microscopic level using a shear device that can be mounted on top of a confocal microscope. We find that the glass yields at a critical strain of about 10%, independently of the shear rate. Surprisingly, the yielding is accompanied by an increase of cooperative particle movements and a formation of dynamic clusters which is in contrast to the normal glass transition where one typically finds heterogeneity increasing whilst moving towards the glass transition.

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