Properties of grains driven by an oscillating disk KIRI NICHOL, MARTIN VAN HECKE, Leiden University — A container of glass beads driven by a rotating disk exhibits properties of a liquid - low density objects float at the depth predicted by Archimedes’ law and sinking objects experience a viscous drag force. However, when the beads are driven by oscillating the disk, a surprising state emerges which exhibits unliquid-like behaviour: a light object submerged in the grains remains stuck, as if in a solid. As the oscillation amplitude is increased, the liquid-like character of the system is restored, although some surprising effects are observed due to contraction and dilation that occurs when the disk reverses direction.

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