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Compaction dynamics of wet granular packings NICOLAS VANDEWALLE, FRANCOIS LUDEWIG, GRASP, Universite de Liege, B-4000 Liege, Belgium., JORGE E. FISCINA, Experimental Physics, Saarland University, D-66123, Saarbrücken, Germany., GEOFFROY LUMAY, GRASP, Universite de Liege, B-4000 Liege, Belgium. — The extremely slow compaction dynamics of wet granular assemblies has been studied experimentally. The cohesion, due to capillary bridges between neighboring grains, has been tuned using different liquids having specific surface tension values. The characteristic relaxation time for compaction τ grows strongly with cohesion. A kinetic model [1], based on a free volume kinetic equations and the presence of a capillary energy barrier (due to liquid bridges), is able to reproduce quantitatively the experimental curves. This model allows one to describe the cohesion in wet granular packing [2]. The influence of relative humidity (RH) on the extremely slow compaction dynamics of a granular assembly has also been investigated in the range $20\% - 80\%$. Triboelectric and capillary condensation effects have been introduced in the kinetic model. Results confirm the existence of an optimal condition at RH $\approx 45\%$ for minimizing cohesive interactions between glass beads [3]. References : [1] F.Ludewig, S.Dorbolo, T.Gilet, and N.Vandewalle, EPL 84, 44001 (2008) [2] J.E.Fiscina, G.Lumay, F.Ludewig and N.Vandewalle, Phys. Rev. Lett. 105, 048001 (2010) [3] N.Vandewalle, G.Lumay, F.Ludewig, J.E.Fiscina, Phys. Rev. E 85, 031309 (2012)

Nicolas Vandewalle
GRASP, Universite de Liege, B-4000 Liege, Belgium.

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