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Buoyancy driven convection in vertically shaken granular matter DEVARAJ VAN DER MEER, PETER ESHUIS, University of Twente, MEHE-BOOB ALAM, Jawaharlal Nehru Center for Advanced Scientific Research, HENK JAN VAN GERNER, University of Twente, KO VAN DER WEELE, University of Patras, STEFAN LUDING, DETLEF LOHSE, University of Twente — Buoyancy driven granular convection is studied for a shallow, vertically shaken granular bed in a quasi-two-dimensional container. At sufficiently strong shaking counter-rotating convection rolls form with pronounced density variations. These rolls are also found in molecular dynamics simulations. The onset of convection is analyzed through a linear stability analysis of the hydrodynamic continuum model presented in Phys. Rev. Lett. 95, 258001 (2005). There is very good agreement between experiments, simulations, and theory.

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