

Abstract Submitted  
for the DFD06 Meeting of  
The American Physical Society

**Phase Diagram of Vertically Shaken Granular Matter** PETER ESHUIS, Physics of Fluids, University of Twente, P.O.Box 217, 7500 AE Enschede, The Netherlands, KO VAN DER WEELE, Mathematics Department, Division of Applied Analysis, University of Patras, 26500 Patras, Greece, DEVARAJ VAN DER MEER, ROBERT BOS, DETLEF LOHSE, Physics of Fluids, University of Twente, P.O.Box 217, 7500 AE Enschede, The Netherlands — A shallow, vertically shaken granular bed in a quasi 2-D container is studied experimentally yielding a wider variety of phenomena than in any previous study: (1) bouncing bed, (2) undulations, (3) granular Leidenfrost effect, (4) convection rolls, and (5) granular gas. These phenomena and the transitions between them are characterized by dimensionless control parameters and combined in a full experimental phase diagram.

Peter Eshuis  
Physics of Fluids, University of Twente,  
P.O.Box 217, 7500 AE Enschede, The Netherlands

Date submitted: 02 Aug 2006

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