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Bouncing dimer[1] STEPHANE DORBOLO, University of Liege, Belgium, DMITRI VOLFSON, LEV TSIMRING, UCSD, San Diego, CA, ARSHAD KUDROLLI, Clark University, Worcester, MA, UNIVERSITY OF LIEGE COLLABORATION, UCSD COLLABORATION, CLARK UNIVERSITY COLLABORATION — A dimer composed of centimetric beads have been excited on a vibrated plate. The motion of the beads have been recorded. Four excited modes have been observed for accelerations of the plate below the gravity. By tuning the amplitude of the vibration of the plate, the dimer changes from one energetic mode to another. These transitions are discrete and depend on the initial conditions. Moreover the first excited mode has a novel horizontal drift in which one end of the dimer stays on the plate during most of the cycle, while the other end bounces in phase with the plate. The speed and direction of the drift depend on the aspect ratio of the dimer.

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