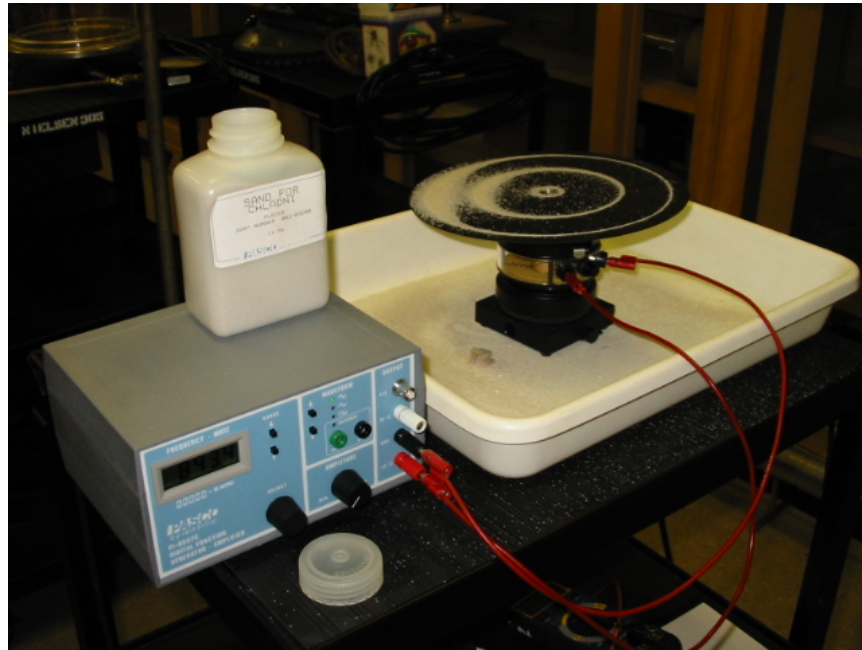


Chladni Plates



Purpose: The plates demonstrate normal modes and resonance in a mechanical system.

[Named after Ernst Chladni (1756-1827)]

The plates are forced to vibrate using a signal generator and Pasco linear transducer. Sand sprinkled on top of the plates accumulates at the nodal points of oscillation. There are a number of clear resonances to tune through, demonstrating the basic idea of a resonance fairly dramatically. At the resonances the sand hops madly, and the sound intensity grows very noticeably – sometimes to an annoying degree. It is fun to watch one eigenstate evolve into the next as the driving frequency is increased between resonances.

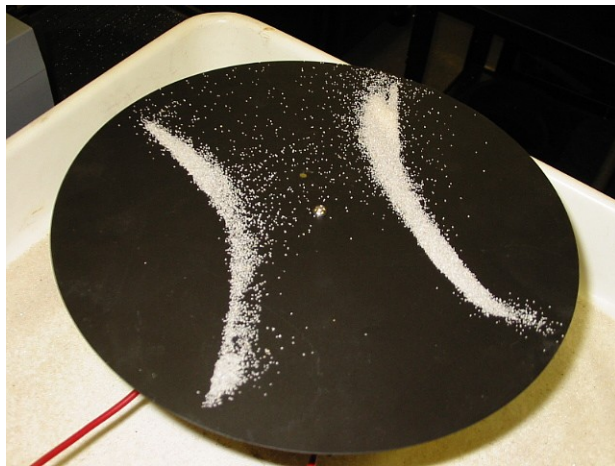
We have two plates: round or square. The round plate produces the loudest resonances and comes with an alternative off-center connecting point if you want to see asymmetric modes.

Note: By keeping the demo in the plastic tub, the sand can be poured back into the bottle using the handy pour spout. It will last forever!

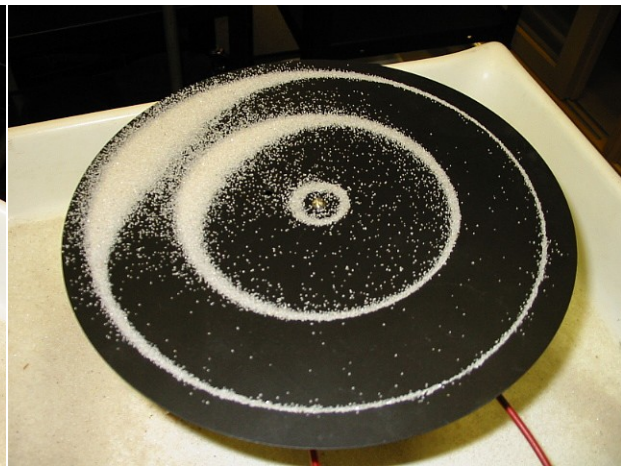
Extra Equipment Needed: Pasco sine-wave generator (Shelf D2).

Location: Shelf D2

Some round-plate resonances:



73Hz



830Hz



An asymmetric mode

Some square-plate resonances:



70Hz



One at high frequency