PHYSICAL MATHEMATICS SEMINAR

COUNTER-SYNCHRONOUS SLOSHING IN FREE CONTAINERS

ANDRZEJ HERCZYŃSKI
Boston College

ABSTRACT:

The sloshing wave motion in a container partially filled with liquid and free to move horizontally will inevitably cause the container to accelerate. A variety of complicated rectilinear motions can arise depending on the initial conditions. In the simplest case, the container oscillates in a periodic fashion about a fixed position, out-of-phase with the liquid oscillating within. This counter-synchronous sloshing is investigated using linearized potential flow theory for containers of symmetric shapes which are amenable to analytical solutions: rectangular boxes, circular cylinders, 90-degree wedges and cones. Experimental results, obtained using containers filled with water and supported on a low-friction cart, are compared to the theoretical predictions.

TUESDAY, APRIL 6, 2010
2:30 PM
Building 2, Room 105

Refreshments at 3:30 PM in Building 2, Room 290
(Math Department - Common Room)

Massachusetts Institute of Technology

Department of Mathematics
Cambridge, MA