

PHYSICAL MATHEMATICS SEMINAR

THE PHYSICS AND MATHEMATICS OF SINGING BOTTLES

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ABSTRACT:

The sounding of a beverage bottle when blown on is a familiar but very little understood phenomenon. An identical mechanism is used by musical wind instruments, like organ pipes and flutes, for sound production. This phenomenon falls under the general umbrella of flow induced oscillations and is representative of a more generic mechanism.

The modeling of this phenomenon essentially involves two components. The first is the resonator, which bears the oscillations. The resonator, however, needs an external energy input to sustain the oscillations, which is provided by the jet of air blown. The dynamics of the jet and its interaction with the resonator is the primary focus of this talk. The investigation has a theoretical as well as experimental aspect and this research poses an interesting intersection of acoustics, fluid dynamics and applied mathematics.

TUESDAY, MARCH 4, 2008

2:30 PM

Building 4, Room 370

*Refreshments at 3:30 PM in Building 2, Room 349
(Applied Math Common Room)*



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