

Thursday, February 18, 2016

4:30–5:20 p.m.

SAS 2102

# Can You Measure the Speed of Sound Using a Beer Bottle?

Ralph Smith

Everyone is familiar with the fact that we can **make notes**, whose pitch varies with the amount of liquid, when we blow across the open end of a bottle. The bottle is acting as a **Helmholtz resonator** and the resulting acoustic phenomenon is quite different from the standing waves produced in a flute or organ pipe – otherwise beer bottles would need to be the length of flutes to produce the same tone. In this presentation, we will model this phenomenon using basic principles of simple **harmonic oscillators** and use our model to estimate the speed of sound. This talk does not assume prior knowledge of physics. It will be **accessible to all undergraduates**.

NCSU Society for Undergraduate Mathematics

## SUM Series

Mathematics and pizza!