

Abstract Submitted
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Apparatus for measuring speed through the Doppler frequency shift of sound WALTER SCHIER, Physics Dept., UMassLowell — The Doppler frequency shift of sound apparatus is based on a one meter diameter rotary table with a “button” speaker at its outer edge. A semicircular waveguide encloses half the periphery and has a microphone pickup on its wall at the midpoint. The tangential speed of the button speaker can be determined two ways for comparison. One method calculates speed from the frequency shift of sound, the other uses the repeat sound pattern. Agreement to one percent is possible at speeds of about 25 mph. In the lab the microphone output is fed successively to pairs of students at ten computer stations. Students must also perform an exercise in their lab report that introduces them to the red shifted wavelengths of receding galaxies at determined distances from the earth thus introducing them to Hubble’s law, the concept of the “Big Bang”, and their estimate of the age of the universe.

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