

Physics Department Seminar

Friday April 6th, 2012

11:00 am in PhSc 105

Laser Microphone

The Physics Behind Hollywood Surveillance

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Abstract: Sound waves, such as those formed during speech, are longitudinal waves composed of alternating regions of gas compression and rarefaction. Determining the structure of those waves, e.g. what someone is saying in a room, by measuring the vibrational pattern on an exterior surface (window), is a difficult task. This talk will discuss the history and development of the use of the laser in making such measurements. I'll conclude by outlining an approach that shows great promise: the photo-pulsed laser vibrometer (PPLV). With PPLV the sound waves generated from the vibrating surface modulate the laser beam itself.