Physics Department Colloquium

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Title: Underwater Hearing and the Squishy Head Problem

Human beings are remarkably capable at the task of localizing sounds, especially those originating in the horizontal plane. This ability is facilitated by inter-aural time and intensity differences, which our brains have spent a lifetime learning to link to sound source locations. If these difference cues are altered, our ability to localize sound is disrupted, for instance if we enter an environment where the speed of sound is significantly altered. The most common example of this is a diver who attempts to localize sounds while underwater. Compounding this problem is the change in the way sound diffracts around the human head in different environments. In hopes of formulating new ways of allowing divers to localize sound underwater, we will treat the head as a sphere and formulate a theoretical model of inter-aural time and level cues in diverse acoustic environments.

Date: April 3, 2014

Time: 11:30 AM

Where: SCP 317