



## Colloquium

# The sound of quantum mechanics

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Host: Johannes Fink

Devices that combined electricity with moving parts were crucial to the very earliest electronic communications. Today, electromechanical structures are ubiquitous yet under-appreciated signal processing elements. These devices exploit the relative slowness of sound compared to light to create compact filter and clock elements. Moreover they convert force and acceleration signals into more easily processed electrical signals. Can these humble, apparently classical, objects exhibit genuinely quantum behavior? Indeed, by strongly coupling the vibrations of a micromechanical oscillator to microwave frequency electrical signals, a mechanical oscillator can inherit a quantum state from an electrical signal. This exciting result heralds the development of quantum processors or quantum enhanced sensors that exploit the unique properties of mechanical systems. Furthermore, quantum electromechanics provides a powerful and versatile way to bring ever larger, more tangible objects into non-classical regimes. In this talk, I will describe the how we use electromechanical devices to move information in time and frequency, while preserving its quantum character.

**Monday, May 15, 2017 04:00pm - 05:15pm**

Raiffeisen Lecture Hall, Central Building



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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