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Detecting the thermal effect of acceleration in an Analog system.

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Given the intimate connection of gravity and its dependence on the changing flow of time from place to place, it is surprising that General Relativistic effects can be modeled in other systems. In 1981 I showed that even the Hawking effect has analogies in other systems, which has spawned an active experimental effort in the past few decades. A harder case has turned out to model the thermal effect that an accelerated detector in the vacuum. Following Bell and Leinaas in 1983, we showed that a circularly accelerated detector can also show a thermal effect. This talk will present a way of implementing a broad band detector of the quantum fluctuations in a BEC which may also be just realisable with an interferometric detector by borrowing techniques from LIGO, with the interferometer in frequency space rather than in real space.

Presenter: Prof. UNRUH, Bill