



Laboratoire LEPRINCE-RINGUET
Ecole polytechnique IN2P3/CNRS

Séminaire

Analogous Hawking radiation in a Bose-Einstein condensate

An acoustic analogue of a black hole may be implemented in a pipe: if the flow happens to be supersonic in some region of space, an acoustic wave emitted from this region will not be able to propagate upstream. One speaks of a "dumb hole". In 1981, Unruh showed that dumb holes should emit a faint sonic radiation, analogous to the Hawking radiation of gravitational black holes.

This idea recently experienced a burst of interest in the domain of Bose-Einstein condensation of atomic vapors. A first reason is the high experimental control achievable in these systems. There is also a theoretical motivation which I will address in detail: the study of density correlations provides a clear signature of the corresponding radiation, even at finite temperature. I will discuss recent exciting experimental results in this direction.

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Salle conférence du
LLR

**Lundi 25 Mars
14h00**

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Responsables séminaires

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