# SEMPARIS – Séminaires en région parisienne

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## Particle Physics at LPTHE

**Mardi 29 Janvier 2019, 14 :00**
LPTHE, Library
Domaines : hep-ph

Titre : *Strong gravitational radiation from a simple dark matter model*

Orateur : **Iason Baldes ( ULB )**

Résumé : *A rather minimal possibility is that dark matter consists of the gauge bosons of a spontaneously broken symmetry. Here we explore the possibility of detecting the gravitational waves produced by the phase transition associated with such breaking. Concretely, we focus on the scenario based on an SU(2) group and argue that it is a case study for the sensitivity of future gravitational wave observatories to phase transitions associated with dark matter. This is because there are few parameters and those fixing the relic density also determine the effective potential establishing the strength of the phase transition. Particularly promising for LISA is the super-cool dark matter regime, with DM masses above O(100) TeV, for which we find that the gravitational wave signal is notably strong. In our analysis, we include the effect of astrophysical foregrounds, which are often ignored in the context of phase transitions.*