

# SEMPARIS – Séminaires en région parisienne

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## Séminaire commun LPTENS/LPTHE

**Mardi 21 Mai 2019, 11 :00**

LPTENS, Bibliothèque

Domaines : hep-th

Titre : *The adventures of queer and rebellious NAdS2*

Orateur : **Ayan Mukhopadhyay ( IIT, Chennai )**

Résumé : *NAdS2 holography is a playground for understanding many fundamental questions from a simple setup. It not only provides insights on low dimensional strongly interacting systems, but also into black holes, and the interplay between quantum information and dynamics. We show how to obtain time-dependent solutions in NAdS2 holography given by JT gravity minimally coupled to non-conformal matter. With ordinary Dirichlet boundary conditions, the behavior is similar to higher dimensional analogues. However, if the source at the boundary is dynamical and it couples to NAdS2 such that there is a total conserved energy, then we find that in the long run the mass of the black hole disappears and the total energy is transferred to the kinetic energy of the source or to a self-consistent potential energy confining the source. We will discuss loopholes which allow violation of second law on the gravity side – the solution is free of any pathology provided the total energy is large. We will discuss some lessons on quantum information by demonstrating an intrinsic limit of the sensitivity of the final state to initial conditions. We will also discuss possible applications to higher dimensional black hole physics in which we propose a new effective theory of the horizon.*

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