

SEMPARIS – Séminaires en région parisienne

<http://string.lpthe.jussieu.fr/semparis/>

Séminaire commun LPTENS/LPTHE

Mardi 16 Janvier 2018, 11 :30

LPTENS, LPTENS library

Domaines : hep-th

Titre : *Chaos and integrability : strings in AdS*

Orateur : **David Vegh (Queen Mary University of London)**

Résumé : *In this talk I present three topics.*

In the first part, I talk about the butterfly effect and the role of out-of-time-order correlators in diagnosing chaos. Maldacena, Shenker, and Stanford discovered a sharp bound on the rate of growth of chaos in thermal quantum systems. This is saturated by black holes in AdS/CFT. I show that (perhaps contrary to some expectations) there are maximally chaotic quantum systems that do not contain gravity.

In the second part, I consider integrable string motion and describe a new discrete way of computing the time-evolution.

In the third part, I study pair-production of cusps on a string. Initially, the static string stretches between two points on the boundary. Perturbing one of the endpoints creates a large propagating wave. The non-linear time-evolution produces energy cascades which result in the creation of cusps on the string. These correspond to singular solitons in the underlying generalized sinh-Gordon theory.
