

Cours de physique théorique de Saclay

Vendredi 17/03/2023, 10:15

Orme des Merisiers Salle Claude Itzykson, Bât. 774

The space of holographic CFTs

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This course will provide a modern point of view on the wide world of large N conformal field theory (CFT) in diverse spacetime dimensions, placed in the context of the conformal bootstrap and the AdS/CFT Correspondence.

Some questions we will tackle:

What is a “Holographic CFT”?

- When does a CFT give rise to an equivalent, emergent simple gravity description?
- What is the conformal bootstrap, and how is it used to constrain and classify the space of consistent large N CFTs and theories of quantum gravity?
- Is string theory the only choice? How can we detect strings and extra dimensions from properties of field theories?
- What precise predictions does quantum gravity seem to make about the space of strongly coupled CFTs?

Provisional lecture plan:

Lectures I-II: Introducing CFTs and their data, large N conformal bootstrap, AdS/CFT, and the notion of “Holographic CFT”

Lecture III: Correlation functions and holography

Lecture IV: Bootstrapping the space of Holographic CFTs

Lecture V: Special focus: Two-dimensional CFTs and AdS₃ gravity

Course website: <https://courses.ipht.fr/?q=en/node/310>

Videoconference and in person in Salle Itzykson, IPhT

Livestream on [youtube.com/IPhT-TV](https://www.youtube.com/IPhT-TV): no subscription required

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