**Institut Henri Poincaré**

11 rue Pierre et Marie Curie, 75231 Paris cedex 05

**String Theory in Greater Paris**

**Rencontres Théoriciennes**

**“Supergravité, théorie des cordes et théorie M”**

***Jeudi 18 Novembre 2021, 10:00***

# Shota Komatsu

***CERN***

## Analyticity and Unitarity for Cosmological Correlators

*I will discuss the fundamentals of quantum field theory on a rigid de Sitter space. First, I will show that the perturbative expansion of late-time correlation functions to all orders can be equivalently generated by a non- unitary Lagrangian on a Euclidean AdS geometry. This finding simplifies dramatically perturbative computations, as well as allows us to establish basic properties of these correlators, which comprise a Euclidean CFT. Second, I use this to infer the analytic structure of the spectral density that captures the conformal partial wave expansion of a late-time four-point function, to derive an OPE expansion, and to constrain the operator spectrum. Third, I will prove that unitarity of the de Sitter theory manifests itself as the positivity of the spectral density. This statement does not rely on the use of Euclidean AdS Lagrangians and holds non-perturbatively.*

**Institut Henri Poincaré, salle 314, 3ème étage**

Retrouvez les activités de la communauté parisienne de théorie des cordes sur
`http ://string.lpthe.jussieu.fr`
La liste de tous les séminaires en région parisienne est disponible sur
`http ://string.lpthe.jussieu.fr/semparis`