SEMPARIS – Séminaires en région parisienne

`http ://string.lpthe.jussieu.fr/semparis/`

Cours

Vendredi 27 Septembre 2019, 10 :00
IPHT, Salle Claude Itzykson, Bât. 774(https ://courses.ipht.cnrs.fr/ ?q=en/node/226
)
Domaines : hep-th—math-ph—quant-ph

Titre : *Lorentzian methods in conformal field theory (1/4)*

Orateur : **Slava Rychkov (IHES, ENS)**

Résumé : *Paraphrasing Alexander Polyakov, "Conformal Field Theory is a way to learn about elementary particles by studying boiling water". There is a technical statement behind this joke : Euclidean Conformal Field Theory, under certain conditions, can be rotated to the Lorentzian signature, and vice versa. This means that even statistical physicists studying finite-temperature phase transitions on a lattice should learn about the Minkowski space ! The goal of this course will be to explain various classical and recent results pertaining to this somewhat surprising conclusion.*

Plan of the course :
- Elementary introduction to Euclidean CFT in d>2 dimensions ;
- The Osterwalder–Schrader theorem about the Wick rotation of general reflection-positive Euclidean Quantum Field Theories, and its limitations ;
- The Luescher–Mack theorem about continuation of CFT correlation functions to the Lorentzian cylinder, and its limitations ;
- Recent results about the analytic structure of Lorentzian CFT correlators.