

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 $d \geq 2$ 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.
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