# SEMPARIS – Séminaires en région parisienne

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## Cours

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**Vendredi 18 Octobre 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 (4/4)*

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&gt;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.*