SEMPARIS – Séminaires en région parisienne

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Cours

Vendredi 16 Octobre 2015, 10 :00
IPHT, Salle Claude Itzykson, Bât. 774, Orme des Merisiers
Domaines : hep-th—physics

Titre : *Bootstrapping Conformal Theories in Arbitrary Dimension (6/6)*

Orateur : **Sheer El-Showk And Miguel Paulos (LPTHE (Jussieu) and CERN (Genève))**

Résumé : *Conformal field theories (CFTs) are special kinds of quantum field theories with enhanced spacetime symmetry, relevant in a variety of systems ranging from condensed matter to quantum gravity.*

In these lectures we shall discuss CFTs in general spacetime dimension and then focus on the so-called conformal bootstrap, which highly constrains the structure of these theories. This will include a derivation of various necessary concepts such as the OPE, crossing symmetry and conformal blocks. We will then describe how the modern bootstrap reformulates crossing symmetry as a numerical problem that can be systematically studied and solved on a computer. Finally we will show how these methods have been used to achieve state-of-the-art results on important problems in strongly coupled physics such as the three dimensional Ising model.