SEMPARIS – Séminaires en région parisienne

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

Seminaire du LPTENS

Mercredi 21 Novembre 2018, 14 :00
LPTENS, Bibliothèque Joel Scherk
Domaines : hep-th

Titre : *Duality and bootstrap for the long-range Ising model*

Orateur : **Connor Behan (Stony Brook)**

Résumé : *The long-range Ising (LRI) model, defined to have interactions decaying as a power of the distance, undergoes a second-order phase transition with the critical exponents depending on the strength of this power. The corresponding CFTs, which are nonlocal as they lack a stress tensor, have for many years been advertised as interpolating between a mean-field theory and the short-range critical Ising model. However, the latter crossover raises conceptual questions due to three properties of the model that can be derived exactly. 1. The LRI has two relevant Z2-odd operators. 2. Both of their scaling dimensions are protected. 3. So are the scaling dimensions of odd-spin primaries in their OPE. I will describe a recently developed duality which reconciles these facts with what we know about the 2D and 3D Ising models.I will also show how the duality can be used to estimate the critical exponents when the usual Wilson-Fisher approach is strongly coupled. Finally, I will explain how the numerical bootstrap can be used to corner this model and present the results of a six-correlator scan.*