

# SEMPARIS – Séminaires en région parisienne

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## 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  $\mathbb{Z}_2$ -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.*

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