Serial Lectures on Conformal Field theory

2D CFT and the Boson-Fermion Correspondence

Dr. David Ridout
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June 18 - June 21, 2019
波谱楼，M-1417

About the lecturer:

Dr. David Ridout got his PhD from the University of Adelaide in 2005. After that, he held a postdoctoral fellowship from NSERC in Quebec (2005-2007), a Marie-Curie postdoctoral fellowship at DESY, Hamburg (2007-2009), and a CRM postdoctoral fellowship in Montreal (2009-2010). He then returned to Australia as an Australian Research Fellow in Australian National University. He is now an ACEMS Distinguished Research Fellow and a Senior Lecturer in University of Melbourne. His research interest includes logarithmic conformal field theories and its applications to statistical physics and string theory.

Schedule (4 lectures):
June 18 - June 21, 2019
15:00 - 17:15 each day (with a 15 mins break)

Abstract:

In these lectures, my first aim is to introduce you to the basics of the area of mathematical physics known as two-dimensional conformal field theory (CFT). The second aim is to illustrate CFT with two of the most important examples, the free boson and the free fermion. My last aim is to show you that these CFTs are actually very closely related via a famous correspondence. The traditional applications of CFT are to the critical points of statistical lattice models, which model second-order phase transitions, and to string theory. Both the free boson and free fermion are defined as string theories, but they are also used to assist in calculating quantities in critical lattice models such as the Ising model.

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