CoE-MaSS weekly seminar series

THE DST-NRF CENTRE OF EXCELLENCE IN MATHEMATICAL AND STATISTICAL SCIENCES (CoE-MaSS) AND THE FACULTY OF SCIENCE AT WITS UNIVERSITY WOULD LIKE TO PRESENT A SEMINAR BY

Prof Sir Vaughan Jones

(Stevenson Distinguished Professor, Department of Mathematics College of Arts and Science, Vanderbilt University, Nashville, USA)

"The Thompson groups F and T and quantum spin chains"

Fields Medalist 1990

Monday, 14 March 2016
10h30-11h30

Broadcast live from:
Videoconferencing Facility, 1st Floor
Mathematical Sciences Building, Wits West Campus

How to connect to this seminar remotely:
You can connect remotely via Vidyo to this research seminar by clicking on this link:
http://wits-vc.tenet.ac.za/flex.html?roomdirect.html&key=y0SSOwFsvsidbzg4qFdWXvvQtyI
and downloading the Vidyo software before the seminar.
You must please join in the virtual venue (called *"CoE Seminar Room (Wits)"* on Vidyo)
strictly between **10h00-10h15**. No latecomers will be added.

Important videoconferencing netiquette:
Once the seminar commences, please mute your own microphone so that there is no feedback
from your side into the virtual room. During the Q&A slot you can then unmute your microphone
if you have a question to ask the speaker.

Title:
The Thompson groups F and T and quantum spin chains

Presenter:
Prof Vaughan Jones, Stevenson Distinguished Professor, Department of Mathematics, College of Arts and Science, Vanderbilt University, Nashville, Tennessee, USA; Email: vaughan.f.jones@Vanderbilt.Edu Website: http://as.vanderbilt.edu/math/bio/vaughan-jones

Abstract:
We will define the groups F and T as groups of diffeomorphisms of the unit interval and the unit circle respectively and discuss other ways of presenting them. They preserve the dyadic rationals and we will see that they act on Hilbert spaces associated with a "semicontinuous" limit of a quantum spin chain to be thought of as "spins sitting at every dyadic rational". The Thompson groups express local changes of scale. The key idea is to embedd the state space of a spin chain into the state space of one with twice as many spins. We do this by reversing the idea of "block spin renormalisation" of Kadanoff. There is some flexibility in these embeddings and we will see that all knots and links occur in this procedure, making the Thompson group as good as the braid group at constructing knots and links. If there is time we will discuss the motivation of this work as a (failed!) attempt to construct conformal field theories from subfactors.
.