Speaker: Glen Evenbly   (UC Irvine)

Title: Entanglement renormalization and wavelets

Abstract: I will establish a precise connection between discrete wavelet transforms
(WTs) and the multi-scale entanglement renormalization ansatz (MERA) in the context
of free particle systems. Specifically, it will be shown that Daubechies wavelets can be
used to build approximations to the ground state of the critical Ising model, and that
these states correspond to instances of MERA, producing the first known analytic
MERA for critical systems. Finally, I will also discuss how the wavelet/MERA relation
could also lead to useful advances in the design of wavelet transforms and in wavelet
applications."