

1086-AG-2923 **Alexander Vandenberg-Rodes*** (vandenbe@math.uci.edu). *The Lee-Yang Theorem in probability and statistical physics.*

First proved for the Ising model of magnetization, the Lee-Yang Circle Theorem is a remarkable result on the location of zeros of the partition (generating) function, and is the starting point for a large body of research into the nature of phase transitions in many models of statistical physics.

In this talk we will give a brief overview of the Lee-Yang theory, especially as expressed in the recent mathematical framework of J. Borcea and P. Branden that is rooted in the following question: Which linear transformations of polynomials preserve the property that a certain subset of the complex plane is devoid of zeros?

Keeping to a more probabilistic viewpoint, we will also show how such knowledge about the zeros translates into Gaussian limit theorems for sums of even very dependent random variables. (Received September 26, 2012)