1099-82-253 **William Yessen*** (yessen@rice.edu). *On the Ising-OPUC Duality.*

A connection between some one-dimensional quantum spin models (including the Ising model) and Jacobi operators via the Jordan-Wigner transformation (1930's or earlier) and the Lieb-Schultz-Mattis ansatz (1960's) is well known. In particular, such a duality allows one to study the spectrum of the spin model in the thermodynamic limit as the spectrum of the associated Jacobi operator; and, as is well known, the Jacobi operators are intimately related to the orthogonal polynomials on the real line. On the other hand, it has been suggested (since the 1980's or earlier) that to classical (in contrast to the quantum) spin models one should also be able to associate an operator on an infinite-dimensional Hilbert space, such that one of the most important quantities of the model, namely the partition function zeros, could be studied as the spectrum of this associated operator. Until recently, such a connection was not known. To a class of models, namely the nearest-neighbor Ising models, we associate a CMV matrix and show that the partition function zeros in the thermodynamic limit can be studied as the (essential) spectrum of the associated CMV matrix (which is to orthogonal polynomials on the unit circle as the Jacobi matrices are to orthogonal polynomials on the real line). (Received February 10, 2014)