

The spectral matrices associated with the stochastic Darboux transformations of random walks on the integers

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Abstract

Abstract: In this talk we will show under what conditions we can apply discrete stochastic Darboux transformations to the transition probability matrix of a random walk on the integers, which is a doubly infinite stochastic and tridiagonal matrix (or Jacobi matrix). We will also analyze the relation between the spectral matrix of the original random walk and those of the associated Darboux transformations. The new spectral matrices are basically conjugations by a matrix polynomial of degree one of a Geronimus transformation of the original spectral matrix.