Maxim Derevyagin* (maksym.derevyagin@uconn.edu), CT. Two-parameter eigenvalue problems for Jacobi matrices.

A number of questions in analysis and probability leads to an eigenvalue problem of the form

\[(J + sH - xI)y = 0,\]

where \(J, H\) are Jacobi matrices, \(s\) and \(x\) are spectral parameters (one of which is usually fixed), and \(y\) is a vector to be found. Clearly, the elements of \(y\) should be polynomials in \(x\) and, at the same time, they should be rational functions in \(s\).

At first, we will discuss the questions that induce such eigenvalue problems and then a few concrete examples of \(J\) and \(H\) will be considered. Also, a basic ideology of Darboux transformations for the eigenvalue problems in question will be presented. (Received September 16, 2018)