Abstract

SJÖSTRAND, Johannes (Bourgogne)

"Eigenvalue asymptotics of large Toeplitz matrices with random perturbations"

This talk is mainly about the most recent one in a series of joint works with Martin Vogel. In earlier works we have considered the asymptotics of eigenvalues of random perturbations of large Jordan matrices and large bidiagonal Toeplitz matrices with a constant entry on each of the "diagonals". We then showed:

1) Most of the eigenvalues live near a certain curve determined by the symbol of the matrix and satisfy a Weyl law there.

2) A minority of the eigenvalues live away from the symbol image curve and their expected density can be described, even though some intuition behind the formula is still missing.

We review quickly the earlier results and then turn to the case of large Toeplitz matrices with constant non-vanishing entries on each of finitely many "diagonals" (finite band matrices). The main result is that we still have the result 1) above, leaving the problem 2) for future study.

We also hope to present a recent generalization to the case of matrices that are not of finite band type.