Basic Oscillatory Matrices

Shaun Fallat

Mathematics and Statistics, University of Regina

sfallat@math.uregina.ca

Abstract

Oscillatory matrices can be viewed as lying between the totally positive and totally nonnegative matrices. Originally studied by Gantmacher and Krein, they have been of particular interest recently partly because of their interplay with bidiagonal factorizations. Like Gantmacher and Krein, we consider tridiagonal matrices (or Jacobi matrices) as a prime motivation, and define a subclass known as the basic oscillatory matrices. We will discuss their connections to bidiagonal factorizations and other relevant properties, such as determinantal inequalities, eigenvalues, and exponents.

[This talk is fondly dedicated to Pauline van den Driessche (a friend and mentor).]