From divergence to convergence via Toeplitz–Silverman matrices

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Abstract

It was recently proved that, for any Toeplitz–Silverman matrix A (see, e.g., [4]), there exists a dense linear subspace of the space of all sequences, all of whose nonzero elements are divergent yet whose images under A are convergent ([2]).

This talk shall cover these results together with some new ones showing that (under suitable assumptions on the matrix) there are a dense set, a large algebra and a large Banach lattice consisting (except for zero) of such sequences. A brief introduction on lineability theory [1] shall also be presented together with these results.

This lecture is the result of a recent joint work with Bernal, Fernández, and Trutschnig, [3].

Keywords.
Lineability, algebrability, latticeability, matrix summability, Toeplitz–Silverman matrix.

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