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Exploring Hadamard multipliers on weighted Dirichlet spaces through L -matrices

The Hadamard product of two power series is obtained by multiplying them coefficientwise. In 2020, Mashreghi and Ransford characterized those power series that act as Hadamard multipliers on all weighted Dirichlet spaces on the disk with superharmonic weight. These power series correspond to those whose associated L -matrix defines a bounded operator on ℓ^2 . An L -matrix is an infinite matrix \mathcal{L} whose entries are of the form $\mathcal{L}_{i,j} = a_{\max\{i,j\}}$ for some complex sequence $(a_n)_{n \geq 0}$. In this talk, we present several conditions on the sequence $(a_n)_{n \geq 0}$ for \mathcal{L} to be a bounded operator on ℓ^2 and we present a particular set of L -matrices for which we are able to exactly determine the norm.

This work is a collaboration with Javad Mashreghi.