

RANDOM CARLESON MEASURES IN THE POLYDISC

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A Carleson measure on the unit disc is a positive measure that embeds continuously the Hardy space inside the corresponding L^2 space on the unit disc. The celebrated work of Carleson characterizes such measures in terms of a geometric condition that has to be tested only on squares having their basis on the unit circle. Such notions have a natural extension to the polydisc, but in this case the geometric characterization becomes much more complicated to work with. In this talk, we will consider atomic measures on the polydisc generated by sequences (such measures play an important role in the theory of interpolating sequences). In particular, we will consider a random sequence in the polydisc, and we will discuss the 0-1 law for it to generate a Carleson measure almost surely. While in the one dimensional case such 0-1 law can be found by using Carleson's geometric condition, such tool is unavailable in the multi-variable setting. We bypass this obstacle by reformulating the problem using Gram matrices, hence highlighting new connections between Carleson measures and random matrices.

This is a joint work with Nikolaos Chalmoukis and Giuseppe Lamberti.