



## Analysis Seminar

**Title:** Random Carleson Measures in the Polydisc

**Speaker:** Alberto Dayan (Saarland University)

**Date:** Tue 16th April 2024 at 12:00AM

**Location:** E0.32 (beside Pi restaurant)

**Abstract:** 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, since determining if such measures are Carleson plays 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 will then discuss a well known reformulation of the problem in terms of random Gram matrices, and then describe those sequences that generates almost surely a Carleson measure for the polydisc by using tools from the theory of random matrices.

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

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