

**SEMINARIO DE ANÁLISIS COMPLEJO (COMPLEX ANALYSIS SEMINAR)**

**Random Carleson Measures in the Polydisc**

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Room 520, Module 17, Department of Mathematics,  
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**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 (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 will then discuss a well known reformulation of the problem in terms of 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.