

SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes 15 de Septiembre 2023,

11:30–12:30, Aula 520, Módulo 17

William O'Regan

University of Warwick

Discretised sum-product problems via
information theoretic inequalities

Resumen:

The discretised ring theorem, conjectured by Katz and Tao, roughly asserts that if a subset A of the reals has dimension $0 < s < 1$ then at least one of the sumset $A + A$ or the product set AA must have dimension larger than $s + c$, where c is a constant which depends only on s . First qualitatively proved by Bourgain in 2003, more recent efforts by numerous mathematicians have given strong quantitative bounds for c . The aim of this talk is to show how one can use ideas from information theory to give a strong quantitative bound for c . No prior knowledge will be required or expected. The content of this talk is based on joint work with András Máthé.

ICMAT CSIC-UAM-UC3M-UCM

Departamento de Matemáticas. U.A.M.

Proyecto CEX2019-000904-S financiado por MCIN/ AEI/10.13039/501100011033.

