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TIME (Mon 17th Jun) 3:30 pm - 4:20 pm
LOCATION CMM (Beauchef 851, Torre Norte, 7mo piso, Sala de Seminarios John Von Neumann)
SPEAKER Anh Le (Northwestern University)
TITLE Multiple correlations and nilsequences

ABSTRACT
Multiple correlation sequences first appeared implicitly in Furstenberg's proof of Szemeredi's theorem. Bergelson, Host and Kra later proved they can be decomposed into the sum of a nilsequence and a sequence tending to zero in density. Motivated by this, Frantzikinakis asks whether we have a similar decomposition along the sequence of primes p_n, or Hardy sequence [n^c], or 2^n. In this talk, I'll answer this question affirmatively. Even though the positive answers to the prime and Hardy sequences are expected, the positive answer to 2^n is somewhat surprising and has an interesting connection with harmonic analysis.

TIME (Mon 17th Jun) 4:30 pm - 5:30 pm
LOCATION CMM (Beauchef 851, Torre Norte, 7mo piso, Sala de Seminarios John Von Neumann)
SPEAKER Joel Moreira (Northwestern University)
TITLE The Erdos sumset conjecture

ABSTRACT The Erdos sumset conjecture predicts that any set of natural numbers with positive density must contain the arithmetic sum A+B of two infinite sets A and B. I will present a recent solution to this conjecture, obtained jointly with F. Richter and D. Robertson. The proof involves a modified version of the correspondence principle devised by Furstenberg in 1977 to convert certain problems from combinatorics into the realm of ergodic theory, and two variations of the decomposition of an arbitrary function on a measure preserving system into an almost periodic and a weak mixing components

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