Analysis Seminar

Title: ZEROS OF OPTIMAL POLYNOMIAL APPROXIMANTS IN ℓ^p_A

Speaker: Daniel Seco (Universidad Carlos III de Madrid)

Date: Tue 2nd November 2021 at 3:00PM

Location: Seminar Room SCN 1.25

Abstract: The study of inner and cyclic functions in l^p_A spaces requires a better understanding of the zeros of so-called optimal polynomial approximants. We determine that a point of the complex plane is the zero of an optimal polynomial approximant for some element of l^p_A if and only if it lies outside of a closed disk (centered at the origin) of a particular radius which depends on the value of p. We find the value of this radius for $p \neq 2$. In addition, for each positive integer d there is a polynomial f_d of degreeat most d that minimizes the modulus of the root of its optimal linear polynomial approximant. We develop a method for finding these extremal functions f_d and discuss their properties. The method involves the Lagrange multiplier method and a resulting dynamical system. This is a joint work with R. Cheng and W.Ross.

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