Analysis Seminar

Title: Zeros and a Jentzsch–type theorem for optimal polynomial approximants

Speaker: Catherine Beneteau (University of South Florida)

Date: Tue 16th May 2023 at 3:00PM

Location: Seminar Room SCN 1.25

Abstract: n this talk, I will discuss optimal polynomial approximants in certain Hilbert spaces of analytic functions of the disk. These are polynomials that indirectly approximate inverses of functions in the space. I will examine their connection with classical objects of function theory such as orthogonal polynomials and reproducing kernels. These polynomials have zeros which made them interesting to engineers in the 1970s in the context of digital filters in signal processing. There is also a theorem of Jentzsch from 1914 that describes the accumulation points on the circle of Taylor series of an analytic function with radius of convergence 1. The answer may surprise you! I will examine what is known about the zeros of optimal polynomial approximants and discuss the analogue of Jentzsch's Theorem in this context.

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