

DREXEL ANALYSIS SEMINAR

April 5, 2024

2-3 PM, Korman 245

**Speaker:** Hugo Woerdeman (Drexel)

**Title:** Partial isospectrality of a matrix pencil and circularity of the  $c$ -numerical range

**Abstract:** We study when functions of the eigenvalues of the pencil

$$\operatorname{Re}(e^{-it}A) = \cos(t)\operatorname{Re}A + \sin(t)\operatorname{Im}A$$

are constant functions of  $t$ . The results are then applied to questions regarding the numerical range, the higher rank numerical range and the  $c$ -numerical range, and we derive trace type conditions for when these numerical ranges are disks centered at 0. The theory of symmetric polynomials plays an important part in the proofs. This talk is based on joint work with Alma van der Merwe and Madelein van Straaten.