Analysis Seminar

Title: Typicality of Operators Admitting a Hypercyclic Algebra

Speaker: Clifford Gilmore (Université Clermont Auvergne)

Date: Tue 21st April 2026 at 3:00PM

Location: E0.32 (beside Pi restaurant)

Abstract: This talk is concerned with the study of *typical* properties (in the Baire category sense) of particular classes of continuous linear operators acting on Fréchet algebras. The investigation of the typicality of operators possessing particular linear dynamical properties was initiated in the monograph by Grivaux, Matheron and Menet [?].

I will begin by introducing the setting of closed balls $\mathcal{B}_M(X)$ of bounded linear operators $T\colon X \to X$ with $\|T\| \leq M$, for $M > 0$. Here X denotes the complex Fréchet algebras $X = \ell_p(\mathbb{N})$, $1 \leq p < +\infty$, or $X = c_0(\mathbb{N})$. When endowed with the topology of pointwise convergence, i.e. the Strong Operator Topology (SOT), the space $(\mathcal{B}_M(X), \texttt{SOT})$ is Polish, which allows us to employ Baire catetory techniques. We say that a property of elements of X is *typical* if the set of all $x \in X$ that possesses the property is comeagre in X.

During the talk, I will recall some pertinent results from the area of hypercyclic algebras that will be of use, in particular a criterion from Bayart, Costa Júnior and Papathanasiou [?]. To conclude, I will give an idea of the proof of the following result:

whenever $M > 1$, a typical operator in $(\mathcal{B}_M(X), \texttt{SOT})$ admits a hypercyclic algebra.

This talk is based on joint work with W. Alexandre and S. Grivaux [?].

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