



DEPARTMENTAL COLLOQUIUM

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APPLICATIONS OF SCHREIER FAMILIES IN BANACH SPACE THEORY

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Abstract:

The Schreier families form a transfinite hierarchy \mathcal{S}_α , $\alpha < \omega_1$, where each S_α is a compact collection of finite subsets of \mathbb{N} . The purpose of this lecture is to discuss certain applications of this combinatorial-topological tool in Banach space theory. Among other things, the Schreier families can be used to introduce ordinal indices that quantify isomorphic properties of Banach spaces. One such example is the Szlenk index of a Banach space X which measures the separability of the dual of X . We discuss how it can be characterized in metrical terms using weighted graph metrics on Schreier families. We also discuss a metrical characterization of reflexivity based on these graphs.