KURT GÖDEL RESEARCH CENTER FOR MATHEMATICAL LOGIC

UNIVERSITÄT WIEN

1090 WIEN, WÄHRINGER STRASSE 25

O.UNIV.-PROF. DR. SY-DAVID FRIEDMAN

INVITATION

DAMIAN SOBOTA
(KGRC)

ON THE CHOICE IN ROSENTHAL'S LEMMA

Abstract:

Rosenthal's lemma in its most basic form states that given an infinite matrix $(m_n^k)_{n,k\in\omega}$ of non-negative reals such that $\sum_{n\in\omega} m_n^k \leq 1$ for every $k \in \omega$, and $\varepsilon > 0$, there exists an infinite set $A \subset \omega$ such that $\sum_{n\in A, n\neq k} m_n^k \leq \varepsilon$ for every $k \in A$. The lemma has numerous important applications in Banach space theory and vector measure theory — I will mention some of them during the talk (on the fly explaining and exemplifying all notions and terms).

A natural question arises — can the choice of a set A in Rosenthal's lemma be somehow controlled, i.e. can A be chosen from some fixed family $\mathcal{F} \subset [\omega]^\omega$? I will show that it is not possible if $\mathcal{F}$ has cardinality strictly less than $\mathrm{cov}(\mathcal{M})$ (the covering of category). On the other hand, if $\mathcal{F}$ is a basis of a selective ultrafilter (assuming one exists), then A can be chosen from $\mathcal{F}$.

THURSDAY, NOVEMBER 10, 2016
Tea at 3:30pm in the KGRC meeting room (room 104)
Talk at 4:00pm in the KGRC lecture room (room 101)
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