# Seminarium geometrów

Poniedziałek, 9.10.2017, 14:15, s. 604

Masato Mimura (EPFL)

## BG, or not BG: upgrading fixed points

Abstract: For a group action on a metric space by isometries, it is a fundamental problem to "upgrade" fixed points: more precisely, we are interested in conditions under which the non-emptiness of fixed points set for small subgroups leads that for larger subgroups (or, even for the whole group). One well-known example of such upgrading is a Helly-type theorem.

Y. Shalom (Publ. IHES 1999) found a seminal connection between this problem and Bounded Generation ("BG") of a group by certain subgroups. Since then, there remained a natural question asking whether we can remove BG conditions from upgrading in his direction. In this talk, I will present the first solution to this question in the affirmative. This provides us with new results (as well as a simpler alternative proof of an epoch-making theorem of M. Ershov and A. Jaikin-Zapirain) on properties (T) and (FH), and their strengthening.