The Institute of Mathematics of the Polish Academy of Sciences Award for outstanding scientific achievements in Mathematics

We have the pleasure of inviting you to the ceremony of granting the IMPAN Scientific Award which will be held on April 21, 2022 at 2:15 p.m. in room 409. In 2021 awardee is Professor Krzysztof Krupiński.

The lecture of the Professor Krupiński will take place in a hybrid form (link: https://us02web.zoom.us/j/81788070427?pwd=NlVIUCtYTFpCeDJwM1V6NDFGRWlodz09) at 15:00 in room 321, title of the lecture:

On some applications of topological dynamics in model theory.

Abstract:

I will start from model-theoretic basics, including first order theories, models, and type spaces. Then I will discuss various "model-theoretic connected components" of definable groups and quotients by them, providing a few examples.

In the second part of the talk, I will define the Ellis semigroup and Ellis group of a flow, and focus on connections between the Ellis groups of natural flows in model theory and certain invariants of definable groups (quotients by model-theoretic connected components) or first order theories (Galois groups of first order theories as well as spaces of strong types). In particular, I will discuss the results of Pillay, Rzepecki and myself which present certain invariants of this kind as quotients of compact (Hausdorff) groups (which are canonical Hausdorff quotients of Ellis groups). This has various consequences obtained by Pillay, Rzepecki and myself, e.g. it leads to a general result that model-theoretic type-definability of a bounded invariant equivalence relation defined on a single complete type over the empty set is equivalent to descriptive set theoretic smoothness of this relation.