**Complex structure of simply described graph limits**
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Theory of combinatorial limits has opened new links between analysis, combinatorics, computer science, group theory and probability theory. Graph limits give an analytic way to represent large graphs. This talk will be focused on graph limits uniquely determined by finitely many subgraph densities, so-called finitely forcible graphons. The study of such graph limits is motivated by problems from extremal combinatorics. They are also related to quasirandom graphs as studied in the work of Rodl, Thomason, Chung, Graham and Wilson, and others.

Lovasz and Szegedy (2011) gave examples of several kinds of finitely forcible graphons and conjectured that the space of typical vertices of every finitely forcible graphon is simply structured, in particular, that it is compact and have finite dimension. We provide counterexamples using a new method for constructing finitely forcible graphons that we developed. We finish by discussing the relation of our results to weak regularity partitions of graphons.

The talk will be self-contained and no previous knowledge of the area is needed. The results presented in the talk are based on joint work with Jacob Cooper, Roman Glebov, Tomas Kaiser, Tereza Klimosova, Jonathan Noel and Jan Volec.