Structures with slow unlabelled growth

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For a structure $\mathfrak{A}$ we denote by $f_n(\mathfrak{A})$ the number of orbits of the natural action of the automorphism group of $\mathfrak{A}$ on the n-element subsets of A. The study of the behaviour of the sequences $f_n(\mathfrak{A})$, in the case when it always has finite values, was initiated by Cameron and Macpherson in the 80s, and it has been a subject of active research since. In my talk I will discuss some recent developments on this topic concerning the case when we have an exponential or lower upper bound for the sequence $f_n(\mathfrak{A})$.

I will present a complete classification of structures $\mathfrak{A}$ for which $f_n(\mathfrak{A}) < c^n$ holds for some $c < 2$ in terms or their automorphism groups. As a consequence of this classification we can show that all these structures satisfy some interesting model-theoretical properties: they are all interdefinable with a finitely bounded homogeneous structure, and they all satisfy Thomas' conjecture, i.e., they have finitely many reducts up to interdefinability.