

- ▶ H.D.MACPHERSON, *Definable sets in finite structures..*
School of Mathematics, University of Leeds, Leeds LS2 9JT, UK.
E-mail: `h.d.macpherson@leeds.ac.uk`.

A theorem of Chatzidakis, van den Dries and Macintyre from 1992 ensures that definable sets in finite fields satisfy a strong uniformity condition on their approximate cardinalities (sufficient, for example, to ensure that their ultraproducts have supersimple rank 1 theory). The conclusion of the theorem turned into the definition of an abstract model-theoretic framework (an ‘asymptotic class of finite structures’) in work of Elwes, myself, and Steinhorn. I will discuss this and further more recent refinements (the notion of ‘multidimensional asymptotic class’, work in progress with Anscombe, Steinhorn, and Wolf). I will also discuss infinitary analogues: for example, any ultraproduct of a multidimensional asymptotic class is ‘generalised measurable’. The focus will be on the wide range of examples from combinatorics and algebra; for example, by work of Ryten, any family of finite simple groups of fixed Lie type forms an asymptotic class.