Combinatorial sets of reals

Abstract: In this talk, we will consider some special sets of reals, which on one side originate in real analysis, general topology and algebra and which on the other can be defined in terms of elementary set theoretic operations on the reals. These sets carry a surprisingly complex infinite-combinatorial structure and their study easily brings us to the boundaries of our axiomatic systems. Typical examples of such special families are maximal almost disjoint families, maximal independent families, bounded and unbounded families, as well as maximal cofinitary groups. We will discuss some recent advances and trends in their study, and outline interesting remaining open questions.