

Designs beyond quasirandomness

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In a recent breakthrough, Peter Keevash proved the Existence conjecture for combinatorial designs, which has its roots in the 19th century. In joint work with Daniela Kühn, Allan Lo and Deryk Osthus, we gave a new proof of this result, based on the method of iterative absorption. In fact, ‘regularity boosting’ allows us to extend our main decomposition result beyond the quasirandom setting and thus to generalise the results of Keevash. In particular, we obtain a resilience version and a minimum degree version. In this talk, we will present our new results within a brief outline of the history of the Existence conjecture and provide an overview of the proof.