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Jozsef Balogh* (jobal@math.uiuc.edu), Math Dept UIUC, Urbana, IL. *An improved lower bound for Folkman's theorem.*

Ramsey type of results in additive combinatorics could be originated to Hilbert. In this talk a brief history of the topics and some recent developments will be explained.

Folkman's Theorem asserts that for each k in N , there exists a natural number $n = F(k)$ such that whenever the elements of $[n]$ are two-coloured, there exists a subset A of $[n]$ of size k with the property that all the sums of the form $\sum_{x \in B} x$, where B is a nonempty subset of A , are contained in $[n]$ and have the same colour. In 1989, Erdős and Spencer showed that $F(k) \geq 2^{ck^2/\log k}$, where $c > 0$ is an absolute constant; here, we improve this bound. Additional related results are discussed. Joint work with Sean Eberhard, Misha Lavrov, Bhargav Narayanan, George Shakan, Andrew Treglown, Adam Zsolt Wagner. (Received August 11, 2018)