

# PRESCRIBING THE BINARY DIGITS OF SQUAREFREE NUMBERS AND QUADRATIC RESIDUES

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ABSTRACT: In joint work with C. Elsholtz and I. Shparlinski we study the equidistribution of multiplicatively defined sets such as squarefree numbers or quadratic non-residues in sets which are defined in an additive way, for example sumsets, Hilbert cubes or sets having digit restrictions. In particular, we show that if one fixes any proportion of less than  $2/5$  of the digits of all numbers of a given binary bit length, then the remaining set still has the asymptotically expected number of squarefree integers.