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Todd M. Gutkunst* (toddgutkunst@kings.edu). *Subsets of finite groups exhibiting additive regularity.*

We introduce the combinatorial notion of additive regularity and investigate sets that are as additively regular as possible. The study of these sets provides a companion to the more-familiar theory of (v, k, λ) -difference sets. We will present several explicit constructions for additively regular sets and several powerful nonexistence results. (Received September 12, 2008)