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## Zero-sum Ramsey numbers of bounded degree graphs

Zero-sum Ramsey numbers were defined by Bialostocki and Dierker in 1990 as an algebraic variant of the well-known Ramsey number. Given a graph $G$ and a finite Abelian group $(\Gamma, +)$ such that $|\Gamma|$ divides $e(G)$, the *zero-sum Ramsey number* of $G$ in $\Gamma$, denoted by $R(G, \Gamma)$, is the minimum integer $t$ such that for any edge-colouring $c : E(K_t) \to \Gamma$, there is a copy $G'$ of $G$ in $K_t$ such that $\sum_{e \in E(G')} c(e) = 0_\Gamma$.

We prove that a linear upper bound of the form $R(G, \Gamma) \leq Cn$ holds for every bounded degree $n$-vertex graph $G$ and finite Abelian group $\Gamma$, where $|\Gamma|$ divides $e(G)$. Here $C$ depends only on the maximum degree of $G$. This bound is tight up to the value of the multiplicative constant.

This is joint work with Xiaopan Lian, Alexandru Malekshahian, and Andrey Shapiro.