
Zbl 349.10046**Erdős, Paul; Szemerédi, E.***On a problem of Graham.* (In English)**Publ. Math., Debrecen 23, 123-127 (1976). [0033-3883]**

The following conjecture is considered. Let p be a prime, and let a_1, \dots, a_p be non-zero residues (\pmod{p}) such that, if $\sum \epsilon_i a_i$ ($\epsilon_i = 0$ or 1 , not all $\epsilon_i = 0$) is a multiple of p , then $\sum \epsilon_i$ is uniquely determined. Then there are at most two distinct residues among the a_i . A proof of this conjecture, for sufficiently large p , is presented. It is remarked by the authors that the proof is surprisingly complicated. The lack of clarity in the exposition in no way helps the reader to overcome this difficulty. A preliminary theorem is proved, which 'easily implies Graham's conjecture in case each residue occurs with a multiplicity $< \eta_0 p$ '. What this means is that the theorem implies that under the assumptions of Graham's conjecture, some residue must occur at least $\eta_0 p$ times. This is the first step in the proof of the conjecture. The remaining steps are difficult, using theorems of Dirichlet, Cauchy-Davenport and Erdős-Heilbronn. Finally, the reader is left wondering if Graham is R. L. Graham, and even if the first author is P. or E. Erdős.

I. Anderson

Classification:

11B13 Additive bases