J. Yangzhou Teachers College (Nat. Sci. Ed.) 11(1991), no.3, 21–27.

ON COVERING SYSTEMS WITH DISTINCT MODULI

SUN Zhiwei

(Nanjing University)

Abstract

Several equivalent versions of the Erdös problem are given and the following results are also proved: Let $\{a_i(\mathrm{mod}\ n_i)\}_{i=1}^k$ $(1 < n_1 < n_2 < \cdots < n_k)$ be a covering system with distinct moduli. If there are no covering systems whose moduli are all distinct and greater than n_1, then for some $i = 1, \cdots, k$ we have $3n_1 \mid n_i$ or $4n_1 \mid n_i$. If all the moduli n_i are odd and squarefree, then their least common multiple $[n_1, \cdots, n_k]$ has at least 11 distinct prime factors.