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Nearly disjoint covering systems. (In English)

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A residue set is a subset of the integers $\mathbb{Z}$ of the form $R = \{k \in \mathbb{Z} |\ k \equiv a(\mathrm{mod} n)\}$ for some $a, n \in \mathbb{N}$. A system $\mathcal{R}$ of residue sets is a covering system if the union of its members equals $\mathbb{Z}$. A system $\mathcal{R}$ of residue sets is incongruent if the moduli n of its members are mutually distinct.

The authors discuss the problem of existence of incongruent covering systems of residue sets where two residue sets intersect only if their moduli are relatively prime. In particular they show that for such incongruent covering systems the number of primes dividing the l.c.m of the moduli of the residue sets in the system must be at least five.

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11A07 Congruences, etc.
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existence of incongruent covering systems of residue sets; number of primes dividing the l.c.m of the moduli