

# Extreme Covering Systems

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## Abstract

Paul Erdős introduced covering systems, or sets of congruences that completely cover the integers, in the 1950's to resolve a conjecture of de Polignac from the 1800's. Since then, many interesting facts have been proven about covering systems, including an upper bound on the least modulus of a distinct covering system. In this talk, we will discuss the related problem of finding an integer  $k$  such that there does not exist a covering system with all moduli in the interval  $[n, kn]$  for all  $n > 2$ . We will also talk about some neat open problems, such as: Does there exist a covering system with odd distinct moduli?

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