

Adjacent primitive roots

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Can we always find adjacent primitive roots of a prime? Clearly no: the only two primitive roots modulo 7 are 3 and 5 . However, for all $p > 7$ there are always two consecutive primitive roots modulo p . What about N consecutive roots?

Carlitz showed in 1956 that given an $N \geq 2$, provided p is sufficiently large, one can always find N consecutive primitive roots modulo p . How large is 'sufficiently large'? In 2013 it was shown that there are always 3 consecutive primitive roots modulo p when $p > 10^{44000}$. I shall present details on how Stephen Cohen, Tom Oliveira e Silva, and I were able to prove the existence of 3 consecutive primitive roots whenever $p > 61$.