

Year: 2017

Vol.: 90

Fasc.: 3-4

Title: Congruences for Catalan–Larcombe–French numbers

Author(s): Xiao-Juan Ji and Zhi-Hong Sun

Let $\{P_n\}$ be the Catalan–Larcombe–French numbers given by $P_0 = 1$, $P_1 = 8$ and $n^2 P_n = 8(3n^2 - 3n + 1)P_{n-1} - 128(n-1)^2 P_{n-2}$ ($n \geq 2$), and let $S_n = P_n/2^n$. In this paper, we deduce congruences for $S_{np}, S_{np+1} \pmod{p^3}$, $S_{mp^r-1} \pmod{p^r}$ and $S_{mp^r+1} \pmod{p^{2r}}$, where p is an odd prime and m, n, r are positive integers.

Address:

Xiao-Juan Ji
School of Mathematical Sciences
Soochow University
Suzhou, Jiangsu 215006
P. R.China

Address:

Zhi-Hong Sun
School of Mathematical Sciences
Huaiyin Normal University
Huaian, Jiangsu 223001
P. R.China