

RECITS Seminar

February 28th, 2024

From 10 a.m. to 11 a.m.

Room C1.03, CAM building

Faculty of Mathematics, USTHB.

Speaker: Yassine OTMANI,

Title. Supercongruences Concerning Bi^snomial Coefficients

Abstract.

In this work, we establish some supercongruences for bi^snomial coefficients. We give a supercongruence similar to Jacobsthal's binomial congruence, as a consequence, we confirm the following conjecture for trinomial coefficients :

$$\binom{np^r}{kp^r}_2 \equiv \binom{np^{r-1}}{kp^{r-1}}_2 \pmod{p^{2r}},$$

where n, k be nonnegative integers and $r > 0$ is an integer with $p > 3$ is a prime number, which were posed by G.-S. Mao [On some congruences involving trinomial coefficients. Rocky Mountain J. Math. **50**(5) (2020), 1759--1771]. We also generalize the Ljunggren congruence for binomial coefficients to bi^snomial coefficients.