

SOLUTIONS OF DIOPHANTINE EQUATIONS

$$AP^{q^{n+1}} + BQP^{q^n} + CQ^{q^{n+1}} = A, C$$

in $\mathbb{F}_q[X] \times \mathbb{F}_q[X]$.

Amara Chandoul

amarachandoul@yahoo.fr

Universidade de Brasília

01/10/2018

10:00 Horas

Auditório Mat-UnB

Abstract

Let $n \in \mathbb{N} \setminus \{0\}$, $A, B, C \in \mathbb{F}_q[X]$ with $\gcd(A, C) = 1$, $AC|B$ and $\deg B > \deg(AC)$. In this paper, we consider the number of polynomial solutions of the Diophantine equations

$$AP^{q^{n+1}} + BQP^{q^n} + CQ^{q^{n+1}} = A$$

and

$$AP^{q^{n+1}} + BQP^{q^n} + CQ^{q^{n+1}} = C$$

in $\mathbb{F}_q[X] \times \mathbb{F}_q[X]$.

Keywords: Diophantine equation, Continued fraction, Polynomials, Finite field.