

ON THE LENGTH OF RATIONAL CONTINUED FRACTIONS OVER $\mathbb{F}_q(X)$

S. DRISS

*Faculté des Sciences de Sfax
Département de Mathématiques
BP 1171, Sfax 3000, Tunisie*

e-mail: sana_driss@yahoo.fr

Abstract

Let \mathbb{F}_q be a finite field and $A(Y) \in \mathbb{F}_q(X, Y)$. The aim of this paper is to prove that the length of the continued fraction expansion of $A(P); P \in \mathbb{F}_q[X]$, is bounded.

Keywords: continued fraction, formal power series, finite field.

2010 Mathematics Subject Classification: 11A55, 13J05, 11T55.

REFERENCES

- [1] J.P. Allouche, *Sur le développement en fraction continue de certaines séries formelles*, C.R. Acad. Sciences **307** (1988) 631–633.
- [2] G. Grisel, *Length of the Powers of a Rational Fraction*, J. Number Theory **62** (1997) 322–337.
- [3] G. Choquet, *Répartition des nombres $k(3/2)^n$ et ensembles associés*, (English summary) C.R. Acad. Sci. Paris Sér. A–B 290, **13** (1980) 575–580.
- [4] M. Hbaib and M. Jellali, *On the quadratic continued fractions over $\mathbb{F}_q(X)$* , Communications in Algebra **38** (2010) 3181–3186.
- [5] A. Lasjaunias, *Diophantine approximation and continued fraction expansions of algebraic power series in positive characteristic*, J. Number Theory **65** (1997) 206–225.
- [6] M. Mendès France, *Fractions continues limitées et théorie des langages*, Séminaire Delange-Pisot-poitou. Théorie des nombres, **16** (1) (1971–1972), exp. n9, 1–5.
- [7] M. Mendès France, *Quelques problèmes relatifs à la théorie des fractions continues limitées*, Séminaire Delange-Pisot-poitou. Théorie des nombres **13** (1) (1971–1972), exp. n2, 1–6.

- [8] M. Mendès France, *Remarks and problems on finite and periodic continued fractions*, Enseign. Math. **39** (1993) 249–257.
- [9] M. Mendès France, *Sur les fractions continues limitées*, Acta Arith. **23** (1973) 207–215.
- [10] J. Mikusinski, *Sur certaines fractions continues finies*, Ann. Polon. Math. (1954) 203–206.
- [11] M. Mkaouar, *Quelques propriétés métriques des fractions continues dans un corps fini*, Soc. Math. Tunisie (1996) 120–130.
- [12] M. Mkaouar, *Sur le développement en fraction continue des séries formelles quadratiques sur $\mathbb{F}_q(X)$* , Acta Arith. XCII. **3** (2001) 241–251.

Received 26 November 2014

Revised 15 July 2015