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ADDENDUM TO
“FACTORING POLYNOMIALS OVER FINITE FIELDS
WITH DRINFELD MODULES”

G. J. VAN DER HEIDEN

After my paper [2] was electronically published by Mathematics of Computation, I came across the PhD thesis of professor I. Y. Potemine [6].

In Section 4.3 of his thesis, an algorithm for factoring polynomials is proposed which is equivalent to the algorithm discussed in my paper. Potemine’s algorithm is acknowledged in my PhD thesis [1].

Our algorithms were found independently, both as analogues of H. W. Lenstra’s well-known Elliptic Curve Method for factoring integers; cf. [3].

Professor Potemine informed me that there are two even earlier publications in which his algorithm is described; namely [5] and [4]. Nevertheless, a complexity analysis and a comparison with the well-known Cantor–Zassenhaus algorithm can only be found in [2] and [1].

REFERENCES

- [1] G. J. van der Heiden, *Weil Pairing and the Drinfeld Modular Curve*, PhD thesis, University of Groningen, 2003.
- [2] ———, Factoring polynomials over finite fields with Drinfeld modules, *Math. Comp.*, **73**:317–322, 2004.
- [3] H. W. Lenstra, Jr., Factoring integers with elliptic curves, *Ann. of Math. (2)*, 126(3):649–673, 1987. MR 89g:11125
- [4] A. Panchishkin, Algorithmes rapides pour factorisation des nombres et des polynômes, test de primalité, courbes elliptiques et modules de Drinfeld, *Séminaire de Théorie des Nombres*, Université de Caen, Fascicule de l’année 1992–1993, pp. 1–7, 1993.
- [5] A. Panchishkin and I. Potemine, An algorithm for the factorization of polynomials using elliptic modules, In *Proceedings of the Conference “Constructive methods and algorithms in number theory”*, p. 117. Mathematical Institute of AN BSSR, Minsk, 1989 (Russian).
- [6] I. Y. Potemine, *Arithmétique des corps globaux de fonctions et géométrie des schémas modulaires de Drinfeld*, PhD thesis, l’Université Joseph Fourier, Grenoble, 1997.

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Received by the editor December 13, 2003.

2000 *Mathematics Subject Classification*. Primary 11G09, 13P05.

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