Permutation Polynomials And Their Applications In Cryptography Permutation Polynomials And Multivariate Public Key Cryptography

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Permutation Polynomials And Their Applications
If m = q − 1, we get Q = X r P(X) is a permutation polynomial if and only if the associated function on F q is injective. 60 Y. Laigle-Chapuy/Finite Fields and Their Applications 13 (2007) 58–70 Remark 3.

Permutation polynomials and applications to coding theory ...
Single variable permutation polynomials over finite fields. Let F q = GF(q) be the finite field of characteristic p, that is, the field having q elements where q = p e for some prime p.A polynomial f with coefficients in F q (symbolically written as f ∈ F q [x]) is a permutation polynomial of F q if the function from F q to itself defined by ↦ is a permutation of F q.

Permutation polynomial - Wikipedia
62 Y. Laigle-Chapuy/Finite Fields and Their Applications 13 (2007) 58–70 4. Permutation binomials Many authors have been interested in binomials as this is the simplest non trivial case. One can find results on such polynomials in [4,23,24] or for more recent work [10,27]. Our new class of permutation polynomials gives clearly a class of ...

Permutation polynomials and applications to coding theory
File Name: Permutation Polynomials And Their Applications In Cryptography Permutation Polynomials And Multivariate Public Key Cryptography.pdf Size: 6996 KB Type: PDF, ePub, eBook Category: Book Uploaded: 2020 Oct 27, 09:38 Rating: 4.6/5 from 723 votes.

Permutation Polynomials And Their Applications In ...
We discuss a special class of permutation polynomials over finite fields focusing on some recent work on their factorization. In particular we obtain permutation polynomials with various factorization patterns that are favoured for applications. We also address a wide range of problems of current interest concerning irreducible factors of the terms of sequences and iterations of such ...

Permutation polynomials and factorization | SpringerLink
The polynomial x q + 2 + b x is a permutation polynomial over the field F q 2 if and only if b ∈ F q 2 \ F q and the equation (4) 3 z 2 + 4 z (b + b q) + 4 b q + 1 + u 2 = 0 has no solutions u, z ∈ F q, u ≠ 0. First, consider the case p = 3. Theorem 2. Let q = 3 m. The polynomial x q + 2 + b x is a permutation polynomial over the field ...

Permutation and complete permutation polynomials ...
Marcos, José E. 2011. Specific permutation polynomials over finite fields.Finite Fields and Their Applications, Vol. 17, Issue. 2, p. 105.

Permutation polynomials and group permutation polynomials ...
Abstract. Let p be a prime, p a power of p and □□ q the finite field with q elements. Any function φ: □□ q → □□ q can be unqiuely represented by a polynomial, □□ φ of degree q.If the map x ↦ F φ (x) induces a permutation on the underlying field we say F φ is a permutation polynomial.Permutation polynomials have applications in many diverse fields of mathematics.

"Some Results Concerning Permutation Polynomials over ...
Let p be a prime and q = p m.We investigate permutation properties of polynomials P(x) = x r + x r+s + ⋯ + x r+ks (0 < r < q - 1, 0 < s < q - 1, and k ≥ 0) over a finite field □ q.More specifically, we construct several classes of permutation polynomials of this form over □ q.We also count the number of permutation polynomials in each class.

ON SOME CLASSES OF PERMUTATION POLYNOMIALS | International ...
A polynomial can represent every function from a finite field to itself. The functions which are also permutations of the field give rise to permutation polynomials, which have potential applications in cryptology and coding theory. Permutation polynomials over finite rings are studied with respect to the sequences they generate. The sequences obtained through some permutation polynomials are ...

Sequences of numbers via permutation polynomials over some ...
1 Sep 2016 | Finite Fields and Their Applications, Vol. 41 Some classes of complete permutation polynomials over $\mathbb{F}_q $ GaoFei Wu, Nian Li, Tor Helleseth and YuQing Zhang

SOME FAMILIES OF PERMUTATION POLYNOMIALS OVER FINITE ...
The problem of counting derangements was initiated by Pierre Remonde de Motmort in 1708. A derangement is a permutation that has no fixed points and the derangement number Dn is the number of fixed point free permutations on an n element set. Furthermore, the derangement polynomials are natural extensions of the derangement numbers. In this paper, we study the derangement polynomials and ...

Title: Some identities involving derangement polynomials ...
Permutation polynomials with few terms attracts many researchers' attention due to their simple algebraic representation and wide applications in coding theory, combinatorial designs and cryptography.

Permutation and complete permutation polynomials | Request PDF
Permutation Polynomials and their Applications in Cryptography, 978-3-8484-0611-1, 9783848406111, 384840611X, Mathematics, A polynomial over a finite ring R is called permutation polynomial if it induces a bijection from R to R. Permutation polynomials have been a subject of study for many years and have applications in many areas of science and engineering.

Permutation Polynomials and their Applications in ...
Computers and Mathematics with Applications 38 (1999) 1-10 www.elsevier, nl/locate/camwa Kronecker Polynomials and Their Applications P. RdZSA Technical University of Budapest, Institute of Mathematics H-1521 Budapest, Hungary rozsakath, brae ... It is easy to show that an appropriate permutation of the rows and the corresponding

Kronecker Polynomials and Their Applications
Permutation polynomials over finite fields have been studied extensively recently due to their wide applications in cryptography, coding theory, communication theory, among others.

Permutation polynomials over finite fields from a powerful ...
Permutation polynomials have been a subject of study for a long time and have applications in many areas of science and engineering. However, only a small number of specific classes of permutation polynomials are described in the literature so far.

Permutation Trinomials Over Finite Fields with Even ...
i DECLARATION It is certified that the work contained in the thesis titled \Permutation Poly-nomials and Their Applications in Cryptography" has done by me under the Supervision