

## Factoring and testing irreducibility of sparse polynomials over small finite fields

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We consider algorithms for testing irreducibility and (if they are not irreducible) finding factors of polynomials over finite fields. In the talk we consider the case of characteristic 2, but the algorithms generalise to other small positive characteristics. The algorithms are efficient for sparse polynomials of high degree. They have been applied to find primitive trinomials whose degree is the exponent of a Mersenne prime, including the (largest known) case of degree 43112609. [Joint work with Paul Zimmermann.]