ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

2. Algebra

1991 MS Classification: 13, 94
Cazaran, Jilyana , and Kelarev, Andrei V., Department of Mathematics, University of Tasmania, Australia

Sufficient conditions for finite commutative rings to be principal ideal rings and an application to error-correcting codes

Let R and S be finite commutative rings having identity elements. First, we give a sufficient condition for the tensor product $R \otimes_{\mathbb{Z}} S$ to be a principal ideal ring. Second, we describe all quotient rings $Q = R[x_1, \ldots, x_n]/I$ which are finite commutative principal ideal rings where I is an ideal generated by univariate polynomials $f_i(x_i)$, $1 \leq i \leq n$. Third we show how to construct g when $rad\ Q = (g)$, hence Q is a principal ideal ring. Our results are a continuation of those given in [1]. [1] J. Cazaran and A. V. Kelarev, Generators and weights of polynomial codes, *Arch. Math.* **69** 1997, 479–486.