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An extension of a theorem
of Frobenius and Stickelberger
to modules of projective dimension one
over a factorial domain

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Abstract

Let R be a Cohen-Macaulay ring. A quasi-Gorenstein R -module is an R -module such that the grade of the module and the projective dimension of the module are equal and the canonical module of the module is isomorphic to the module itself. After discussing properties of finitely generated quasi-Gorenstein modules, it is shown that this definition allows for a characterization of diagonal matrices of maximal rank over a Cohen-Macaulay factorial domain R extending a theorem of Frobenius and Stickelberger to modules of projective dimension 1 over a commutative factorial Cohen-Macaulay domain.

Keywords:

quasi-Gorenstein modules, diagonalizable matrices

2010 MSC: 13C05 (primary), 13D07, 13F15, (secondary).

1. Introduction

This paper brings together two threads in the theory of modules that have not experienced extensive development in recent times. The first of which is the study of diagonalization of matrices under equivalence over arbitrary

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