$$\mathfrak{M}(\mathcal{K}) = \sum_{j=1}^{m} \cdot \mathfrak{M}(K_j),$$

$$K_j) \dotplus \mathfrak{M}\left(\begin{pmatrix} K_i & L \\ N & K_{i+1} \end{pmatrix}\right) \dotplus \mathfrak{M}(K_{i+2}) \dotplus \ldots \dotplus \mathfrak{M}(K_m)$$

obtain therefore an isomorphism

$$\left(\begin{pmatrix} K_i & L \\ N & K_{i+1} \end{pmatrix}\right) \cong \mathfrak{M}\left(\begin{pmatrix} K_i & 0 \\ 0 & K_{i+1} \end{pmatrix}\right). \tag{19}$$

k and consider the k × k matrices

$$= \begin{pmatrix} E & 0 \\ 0 & \mathfrak{A} \end{pmatrix}, \text{ where } \mathfrak{A} = \begin{pmatrix} K_i(x) & 0 \\ 0 & K_{i+1}(x) \end{pmatrix};$$

$$= \begin{pmatrix} E & 0 \\ 0 & \mathfrak{A}' \end{pmatrix}, \text{ where } \mathfrak{A}' = \begin{pmatrix} K_i(x) & L(x) \\ N(x) & K_{i+1}(x) \end{pmatrix}.$$

somorphism (19) we have an isomorphism

$$\mathfrak{M}(\mathcal{K}_1) \cong \mathfrak{M}(\mathcal{K}_1'). \tag{20}$$

re equivalent to some characteristic matrices $xE - A_1$ and $_k$ we obtain by Theorem 3 and (20) that the matrices $\mathcal{K}_1$ and w that this is impossible.

$]_k$ are such that

$$U(x)\mathcal{K}_1' = \mathcal{K}_1 V(x).$$

d V into blocks U_{ij}, V_{ij} corresponding to the blocks of the he equations

$$U_{21} = \mathfrak{A} V_{21}, \tag{21}$$

$$U_{22}\mathfrak{A}' = \mathfrak{A} V_{22}. \tag{22}$$

ments of the matrix U_{21} belong to the ideal P. In view of s $|U_{22}| \in P$. Therefore, $|U| \in P$ and the matrix U(x) is non-roof of Theorem 6.

ces and Strong Invariants

were announced in [7]. If $A \in R_m$ we denote by Ann(A) the $\in R[x]$ with $F(A) = 0$. As was shown in [14] the ideal Ann(A) the two leading Fitting invariants:

$$E - A) : \mathcal{D}_{m-1}(xE - A)) = (\chi_A(x) : \mathcal{D}_{m-1}(xE - A)). \tag{23}$$

y determined if for any matrix $B \in R_m$ the condition $A \approx B$ conditions: Ann(A) = Ann(B) and $\bar{A} \approx \bar{B}$. By (23) it is clear ces are canonically determined. Before we describe poly-st derive some more specific results about the ideal Ann(A).

rix $A \in R_m$ is a monic polynomial $F(x) \in R[x]$ of smallest mal polynomial of a matrix is not in general unique. For

Z/4 has minimal polynomials x^2 and $x(x + 2)$. The proper-

rices over R are not well studied. For example it is un-nimal polynomial of a matrix which divides the characteris-

ial for $A \in R_m$ and $H(x) \in \text{Ann}(A)$. Then $H(x) = Q(x)F(x) +$ d $L(A) = 0$. Here we have $L(x) \in J[x]$ since otherwise by a a monic polynomial $L_0(x)$ which is an associate of L(x) with this is impossible since $L_0(A) = 0$. We have therefore

$$\text{Ann}(A) = (F(x)) + \text{Ann}(A) \cap J[x]. \tag{24}$$