

testing WriteTEXFF  
 $\mathbb{F}_2, \mathbb{F}_{2^2}, \mathbb{F}_{(2^2)^2}, \mathbb{F}_{((2^2)^2)^2}, \mathbb{F}_{(2^2)^4},$

switching to the finite field  $\mathbb{F}_{2^4}$  with defining polynomial  $x^4 + x^3 + x^2 + x + 1$  where  $\alpha = \omega^1 + \omega^3$  and  $\omega$  is a root of  $x^4 + x^3 + x^2 + x + 1$  using the basis  $B = [\beta_i] = [\alpha^3, \alpha^6, \alpha^{12}, \alpha^9]$

testing WriteTEXFFEByGenerator and WriteTEXFFE:

$\alpha^{12} = 0010$   $\alpha^9 = 0001$ ,  $1 = 1111$ ,  $\alpha^3 = 1000$ ,  $\alpha^5 = 0101$ ,  $\alpha^{10} = 1010$

testing WriteTEXFFEVecByGenerator and WriteTEXFFEVec:

$[\alpha^{12}, \alpha^6, \alpha^{10}] = [0010, 0100, 1010]$

testing WriteTEXFFEMatrix:

$$\begin{bmatrix} 1100 & 0110 & 0010 & 1110 \\ 1101 & 1000 & 0010 & 1110 \\ 1101 & 0111 & 0000 & 0011 \end{bmatrix}$$

testing WriteTEXFFEMatrixByGenerator:

$$\begin{bmatrix} \alpha^2 & \alpha^4 & \alpha^{12} & \alpha^7 \\ \alpha^{11} & \alpha^3 & \alpha^{12} & \alpha^7 \\ \alpha^{11} & \alpha^{14} & 0 & \alpha^8 \end{bmatrix}$$

testing WriteTEXUnivarFFPolyByGenerator:  $x_0^4 + x_0^3 + x_0^2 + x_0 + 1$

testing WriteTEXFieldPolyByGenerator:  $x^4 + x^3 + x^2 + x + 1$

testing WriteTEXLFSRPolyByGenerator:  $y^4 + y^3 + y^2 + y + 1$

testing WriteTEXUnivarFFPolyByGenerator:  $\alpha^{12}z^{15} + \alpha^3z^{11} + z^5 + \alpha^{14}$

testing WriteTEXMultivarFFPolyByGenerator:

$\alpha^{10}x_1^{12} + x_0x_2, \quad \alpha^{13} + x_0x_2, \quad x_{10}x_{12} + \alpha^{13}x_{11}, \quad s_{10}s_{12} + \alpha^{13}s_{11}, \quad \alpha^{13}x_1 + x_0x_2$