M
$H_1(M,Z)=0$
M
1"$description, sloped, isomorphic/.style =$
$arsymbol = \cong,]H_2(M,Z)\times$
$H_2(M,Z)\longrightarrow$
Z
n
M
$Y=$
∂M
$b_1(Y)=$
0
$H_1(Y,Z)$
${}_2(M,Z)\times$
$H_2(M,Z)\longrightarrow$
$ZH_2(M,Z)\longrightarrow$
$(H_2(M,Z),Z)$
$(a,b)\mapsto$
$Za\mapsto$
$(a,)\in$
$H_2(M,Z)$
$H_1(Y,Z)$
$K\subset$
S^3
$X=$
$S^3\setminus$
K
$\widetilde{X}\rho X$
$C_*(\widetilde{X})$
$Z[t,t^{-1}]\cong$
$Z[Z]$
$H_1(\widetilde{X},Z[t,t^{-1}])$
K
${}_1(\widetilde{X},Z[t,t^{-1}])\times$
$H_1(\widetilde{X},Z[t,t^{-1}])\longrightarrow$
$QZ[t,t^{-1}]$
${}_1(\widetilde{X},Z[t,t^{-1}])\cong$
$Z[t,t^{-1}]^n(tV-V^T)Z[t,t^{-1}]^n\ ,$
$whereisaSeifertmatrix.$
${}_1(\widetilde{X},Z[t,t^{-1}])\times$
$H_1(\widetilde{X},Z[t,t^{-1}])\longrightarrow$
$QZ[t,t^{-1}]$
$(\alpha,\beta)\mapsto$
$\alpha^{-1}(t-$
$1)(tV-$
$V^T)^{-1}\beta$
Z
Z
R
$\xi\in$
$S^1\setminus$
$\{\pm1\}p_\xi=$
$(t-$
$\xi)(t-$
$\xi^{-1})t^{-1}$
$\xi\in$
$R\setminus$
$\{\pm1\}q_\xi=$
$(t-$
$\xi)(t-$
$\xi^{-1})t^{-1}$
$\xi\notin$
$R\cup$
$S^1q_\xi=$
$(t-$
$\xi)(t-$
$\xi)(t-$
$\xi^{-1})(t-$
$\xi^{-1})t^{-2}$
$\Lambda=$
$R[t,t^{-1}]$
${}_1(\widetilde{X},\Lambda)\cong$
$\bigoplus_{\xi\in S^1\setminus\{\pm1\}k\geq0}(\Lambda p_\xi^k)^{n_{k,\xi}}\oplus$
$\bigoplus_{\xi\notin S^1 l\geq0}(\Lambda q_\xi^l)^{n_{l,\xi}}$

On
$isome$-
$tries$