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Index of Symbols

$\dim_R M$, the Krull dimension of an R -module M .

$\text{depth}_R M$, the depth of an R -module M .

$\text{length}_R(M)$, the length of an Artinian R -module M .

$H_m^i(M)$, i -th local cohomology of M with support in $\{\mathfrak{m}\}$; (1.2).

$e(M)$, the multiplicity of M ; (1.6).

K_R , the canonical module of R ; (1.10).

$\text{syz}^n(M)$, the reduced n -th syzygy of M ; (1.15).

$k\{x_1, x_2, \dots, x_n\}$, convergent power series ring over a valued field k ; (1.19).

$\mathfrak{M}(R)$, the category of finitely generated R -modules.

$\mathfrak{C}(R)$, the category of CM modules over R .

$S(M)$ (resp. $S'(N)$); (2.1) (resp. (2.1)').

$\tau(M)$, the AR translation of M ; (2.8).

$\tau^{-1}(M)$; (2.8)'

$\text{tr}(M)$, the Auslander transpose of M ; (3.5).

$\underline{\text{Hom}}_R(M, N)$; (3.7).

$\text{Mod}(\mathfrak{C})$, the category of contravariant additive functors from \mathfrak{C} to (Ab) ; (4.1).

$\text{mod}(\mathfrak{C})$, the Auslander category of \mathfrak{C} ; (4.6).

(M, N) , = $\text{Hom}_R(M, N)$ in Chapters 4 and 5.

S_M , the simple functor associated to M ; (4.11).

$\underline{\text{Mod}}(\mathfrak{C})$; (4.14).

$\underline{\text{mod}}(\mathfrak{C})$; (4.14).

$(M, N)_n$; (5.1).

$\text{Irr}(M, N)$, the space of irreducible morphisms from M to N ; (5.1).

$\text{irr}(M, N)$, the dimension of $\text{Irr}(M, N)$; (5.1).

$n(R)$, the number of isomorphism classes of indecomposable CM modules over R ; (5.10).

\mathcal{N}_T^R , the Noetherian different of R over T ; (6.6).

\mathcal{D}_T^R , the Dedekind different of R over T ; (6.6).

$H_T^i(R, M)$, i -th Hochschild cohomology of an R -module M ; (6.8).

\mathcal{N}^R ; (6.11).

$\text{MF}_S(f)$, the category of matrix factorizations of f ; (7.1).

$\text{Coker}(\varphi, \psi)$; (7.2), (7.4).

$\underline{\text{MF}}_S(f)$; (7.3).

$\underline{\text{RMF}}_S(f)$; (7.3).

\mathfrak{C} ; (7.3).

- $c(f)$, the set of ideals I with $f \in I^2$; (8.1).
 $I(M)$; (8.11).
 $\beta_n(M)$, n -th Betti number of M ; (8.18).
 $S * G$, the skew group ring of G over S ; (10.1.1).
 $\mathcal{P}(S * G)$, the category of projective modules over $S * G$; (10.1).
 $\text{Mc}(V, G)$, the McKay graph of G on V ; (10.3).
 $\text{mult}_i(W)$; (10.3).
 $\nu_i(P)$; (10.3).
 R^\natural ; (12.1.1).
 $R^{\#\#}$; (12.8).
 $\underline{\Gamma}(R)$, the stable AR quiver of R ; (12.12).
 $\text{K}_0(\mathfrak{A})$, the Grothendieck group of \mathfrak{A} ; (13.1).
 $\text{AR}(\mathcal{C})$; (13.6).
 R_Q , the local ring of hypersurface defined by a quadratic form Q ; (14.1).
 G_Q , the associated graded ring of R_Q ; (14.4).
 $C(Q)$, the Clifford algebra of Q ; (14.6).
 $\text{gr}\mathfrak{M}(C(Q))$, the category of graded $C(Q)$ -modules; (14.7).
 $\text{gr}\mathcal{C}(R)$, the category of graded CM modules over R ; (15.1).
 τ_{gr} , graded AR translation; (15.4.1).
 Γ_{gr} , the subgraph of Γ consisting of gradable modules; (15.9).
 $R(A)$, the semigroup ring defined by an integer matrix A ; (16.1).
 $\widehat{R}(A)$, the toric singularity associated with an integer matrix A ; (16.1).
 $H_M(\lambda)$, the Hilbert series of M ; (17.1).
 $h(M)$, the h-vector of M ; (17.1).