Glossary of Symbols

$B(x, r)$	ball of radius $r > 0$ centered at x	2
∂	boundary	37
C	generic notation for a category	3
C^{op}	opposite category of C	6
CG	category of compactly generated spaces together with continuous maps	111
CGWH	category of compactly generated weakly Hausdorff spaces together with continuous maps; a convenient category of spaces	111
CH	category of compact Hausdorff spaces together with continuous maps	99
$\mathbb{C}$	complex numbers	22
CX	the (reduced) cone of a (pointed) space X	124
D^n	closed unit ball in $\mathbb{R}^n$	3
$\varnothing$	the empty set	1
$\twoheadrightarrow$	an epimorphism	14
$\mathbf{k}$	generic notation for a field	5
Fld	category of fields	16
Grp	category of groups	5
$\hat{f}$	shorthand for the adjunct of a map f in some adjunction	92
$\simeq$	homotopy	34
hTop	homotopy category of spaces	5
hTop_*	homotopy category of pointed spaces	121
$\mathbb{Z}$	integers: $\ldots, -2, -1, 0, 1, 2, \ldots$	22
$L \dashv R$	generic notation indicating that the functors L and R form an adjunction	92
l_p	for $1 \leq p \leq \infty$, the normed vector space of ($\mathbb{R}$-valued) sequences which converge in the p-norm	23
M_f	mapping cylinder of f	130
$\rightarrowtail$	a monomorphism	14

$\mathsf{Nat}(F, G)$	natural transformations between functors $F, G\colon \mathsf{C} \to \mathsf{D}$. *alt*: $\mathsf{D}^{\mathsf{C}}(F, G)$	12
$\mathbb{N}$	natural numbers: $0, 1, 2, \ldots$	22
P_f	mapping path space of f	130
π_n	for each $n \in \mathbb{N}$, the nth homotopy functor defined by $[S^n, -]\colon \mathsf{Top}_* \to \mathsf{Set}$	121
π_1	denotes the functor sending spaces to fundamental group(oid)s possibly relative to a subspace or a point	119, 120
$R\mathsf{Mod}$	category of modules over a ring R	5
$\mathbb{R}$	real numbers	2
$\mathbb{RP}^n$	n-dimensional real projective space	29
Set	category of sets	5
Set_*	category of pointed sets	5
ΣX	the reduced suspension of a pointed space X	124
$\operatorname{spec} R$	set of prime ideals of (a ring) R	22
S^n	n-sphere	3
SX	the suspension of a space X	125
$\mathcal{T}_x$	the open neighborhoods of x in the topology $\mathcal{T}$	2
Top	category of topological spaces	5
Top_*	category of pointed spaces	5
$\mathcal{T}$	generic notation for a topology	1
$\mathsf{Vect}_{\mathbf{k}}$	category of $\mathbf{k}$-vector spaces	5
WH	category of weakly Hausdorff spaces together with continuous maps	111
X^*	dual space of an R-module X. *alt*: $\hom(X, R)$	17