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Index of Special Notations

		Section	Page
$S \subset T$	(S is a subset of T)	01	3
$S \subsetneq T$	(S is a proper subset of T)	01	3
$S \setminus T$	(set-difference of S and T)	01	4
$(a_i \mid i \in I)$	(family with index set I)	02	7
S^I	(set of all families in S with index set I)	02	7
$M^{(I)}$	(set of all families in M with index set I and finite support)	07	28
$(\mathbb{R}^{(I)})_\nu$	(set of all families in \mathbb{R} with index set I , finite support, and sum ν)	35, 37	116, 124
$\times (A_i \mid i \in I)$	(set-product of the family $(A_i \mid i \in I)$ of sets)	04	15
$f \times g$	(cross-product of the mappings f and g)	04	17
$\times (f_i \mid i \in I)$	(cross-product of the family $(f_i \mid i \in I)$ of mappings)	04	17
$g^{\times I}$	(I -cross-power of the mapping g)	04	18
$f_{>}$	(image mapping of f)	03	12
$f^{<}$	(pre-image mapping of f)	03	12
f^{\leftarrow}	(inverse of the mapping f)	03	11
f^{on}	(n th iterate of the mapping f)	03	11
$f _A$	(restriction of f to A)	03	12
$f _A^B$	(adjustment of f range)	03	12
$f _{\text{Rng}}^A$	(adjustment of f to range)	03	13
$f _A$	(A -adjustment of f when A is f -invariant)	03	13
$f(\mathcal{V})$	(lineonic extension of f)	85	316
$c_{D \rightarrow C}$	(constant with domain D , codomain C , and range $\{c\}$)	03	11
1_S	(identity mapping of S)	03	11
$1_{U \subset S}$	(inclusion mapping of U into S)	03	11
$(a, \cdot), (\cdot, b)$	(“insertion” into a product of two sets)	04	18
(c, j)	(“insertion” into a product of a family of sets)	04	19
$\#S$	(cardinal of S)	05	20
$[x, y]$	(closed interval; segment joining the points x and y)	08, 37	32, 123
$]x, y[$	(open interval; open segment joining the points x and y)	08, 51	32, 163

		Section	Page
$[a, b[,]a, b]$	(half-open intervals)	08	31
$\overline{\mathbb{R}}$	(extended-real-number set)	08	32
$\overline{\mathbb{P}}$	(extended-positive-number set)	08	32
ι	(identity-mapping of \mathbb{R} ; “indeterminate”)	08, 92	34, 353
$\partial_t f$	(derivative of f at t)	08, 61	34, 209
∂f	(derivative-function of f)	08, 61	34, 209
f^\bullet	(derivative-function of f)	08, 61	35, 210
$\partial^n f, f^{(n)}$	(derivative of order n)	08, 61	35, 209
∇	(gradient)	33, 63	108, 218
$\nabla_{(1)}, \nabla_{(2)}$	(partial gradients)	65	228, 229
$\varphi_{,1}, \varphi_{,2}$	(partial derivatives)	65	228, 229
$\nabla_{(j)}, \varphi_{,j}$	(partial gradients and derivatives)	65	231
Δ	(Laplacian)	67	241
$\mathbf{L}_1 \oplus \mathbf{L}_2$	(“evaluation-sum” of \mathbf{L}_1 and \mathbf{L}_2)	14	49
$\bigoplus (\mathbf{L}_i i \in I)$	(“evaluation-sum” of a family of linear mappings)	14	50
δ^I	(standard basis of $\mathbb{F}^{(I)}$)	16	55
\mathcal{V}^*	(dual of the linear space \mathcal{V})	21	71
\mathbf{b}^*	(dual of the basis \mathbf{b})	23	78
\mathbf{L}^\top	(transpose of the linear mapping \mathbf{L})	21	71
\mathcal{S}^\perp	(annihilator of the set \mathcal{S} ; orthogonal supplement)	21, 41,	72, 137
\mathbf{B}^\sim	(switch of the bilinear mapping \mathbf{B})	24	83
$\mathbf{w} \otimes \boldsymbol{\lambda}$	(tensor product of \mathbf{w} and $\boldsymbol{\lambda}$)	25	86
$\overline{\mathbf{S}}$	(quadratic form corresponding to the bilinear form \mathbf{S})	27	94
$\overline{\mathbf{Q}}$	(bilinear form corresponding to the quadratic form \mathbf{Q})	28	94
\overleftrightarrow{xy}	(line passing through the points x and y)	32	107
\mathbf{v}^2	(inner square of \mathbf{v})	41	133
$\mathbf{u} \cdot \mathbf{v}$	(inner product of \mathbf{u} and \mathbf{v})	41	133
$\langle \mathbf{u} \mathbf{v} \rangle$	(unitary product of \mathbf{u} and \mathbf{v})	89	337
$ \mathbf{v} $	(magnitude of \mathbf{v})	42	139
$\ \mathbf{L}\ _{\nu, \nu'}$	(operator norm of \mathbf{L} relative to ν, ν')	52	174
$\ \mathbf{L}\ _\nu$	(operator norm of the lineon \mathbf{L} relative to ν)	52	174
$\ \mathbf{L}\ $	(operator norm of \mathbf{L} relative to magnitude)	52	176
$[\mathbf{L}]_{\mathbf{b}}$	(matrix of the lineon \mathbf{L} relative to the basis \mathbf{b})	18	63
$[\mathbf{h}]^c, [\mathbf{h}]_c, [\mathbf{T}]^c_d$	(components relative to a coordinate system)	71, 73	279, 289

Index of Multiple-Letter Symbols

	Section	Page
Acc (set of accumulation points, of a set)	57	197
add (addition mapping)	11	39
Aspec (angle-spectrum, of a lineon)	88	333
Asps (angle-spectral space, of a lineon)	88	333
Ball (ball, in a genuine Euclidean space)	46	153
Bdy (boundary, of a set)	53	179
Box (norming box, determined by a basis)	51	168
Ce (Norming cell, of a norm)	51	164
ch (characteristic family or function, of a set)	02, 03	8, 10
chp (characteristic polynomial, of a lineon)	95	370
Clo (closure, of a set)	53	178
Cod (codomain, of a mapping)	03	9
Comm (commutant algebra, of a lineon)	18	62
Conf (set of confined mappings)	62	213, 216
Curl (curl, of a mapping)	611	261
cxc (convex-combination mapping, of a family in a flat space)	37	124
Cxh (convex hull, of a subset of a flat space)	37	123
dd (directional derivative)	65	233
deg (degree, of a polynomial)	92	353
det (determinant)	73	287
diam (diameter)	52	173
diff (point-difference mapping)	32	103
dim (dimension, of a linear space or a flat space)	17, 32	58, 107
div (divergence)	67	239
Dmd (norming diamond, determined by a basis)	51	168
Dom (domain, of a mapping)	03	9
dst (distance function, of a genuine Euclidean space)	46	152
Eis (group of Euclidean automorphisms)	45	149
emult (elementary multiplicity function, of a lineon)	95	370
ev (evaluation, on a set-product or a set of mappings)	04, 22,	16, 17, 74

		Section	Page
exp	(exponential, lineonic exponential)	08, 612	34, 266
Fin	(set of all finite subsets, of a set)	05	21
Fis	(group of flat automorphisms)	33	111
flc	(flat combination mapping, of a family in a flat space)	35	116
Flf	(space of flat functions)	36	120
Fsp	(flat span, of a subset of a flat space)	32	107
Gr	(graph, of a mapping)	03	10
ind	(index, of an inner-product space)	47	157
Inj	(set of all injective mappings from a given set to another)	04	16
inf	(infimum, of a set)	08	32
ins	(insertion mapping)	14, 15	48, 52
Int	(interior, of a set)	53	177
inv	(inversion mapping)	68	246
ip	(inner-product)	41	133
Ker	(kernel, of a homomorphism)	06	24
lim	(limit)	08, 55, 57	34, 186, 198
Lin	(space of linear mappings, from a given linear space to another; algebra of lineons)	14, 18	47, 61
Lin ₂	(space of bilinear mappings)	24	81
Lis	(set of linear isomorphism, from a given linear space to another; linear group)	14, 18	48, 62
lnc	(linear combination mapping, of a family in a linear space)	15	51
log	(lineonic logarithm)	85	320
lp	(polar decomposition, left positive part)	86	324
Lsp	(linear span, of a subset of a linear space)	12, 92	42, 355
Map	(set of all mappings, from a given set to another)	04	16
max	(maximum, of a set)	08	32
min	(minimum, of a set)	08	32
mult	(multiplicity function, of a lineon)	82, 810	307, 340
Nhd	(collection of neighborhoods, of a point)	53	177

		Section	Page
no	(norm, of a norming cell)	51	165
Null	(nullspace, of a linear mapping)	13	46
opp	(opposition mapping)	11	39
or	(polar decomposition, orthogonal part)	86	324
Orth	(set of orthogonal mappings, from a given inner-product space to another; orthogonal group)	43	141, 142
Perm	(set of all permutations, of a given set)	04	16
Pos	(set of positive symmetric lineons)	85	316
Pos ⁺	(set of strictly positive symmetric lineons)	85	316
pow	(lineonic power)	66	237
Pspec	(pair-spectrum, of a lineon)	88	330
Psp	(pair-spectral space, of a lineon)	88	330
Qu	(space of quadratic forms)	27	94
Qspec	(quasi-spectrum, of a lineon)	87	327
Qsp	(quasi-spectral space, of a lineon)	87	327
Rng	(range, of a family or a mapping)	02, 03	7, 10
rp	(polar decomposition, right positive part)	86	324
sep	(separation function, of a Euclidean space)	45	148
sgn	(sign-function)	08	32
sig	(signature, of an inner-product space)	47	155
Skew	(space of skew linear mappings or lineons)	27, 41	92, 135
Skew ₂	(space of skew bilinear mappings)	24	83
sm	(scalar-multiple mapping)	11, 89	39, 335
Small	(set of small mappings)	62	212, 216
Spec	(spectrum, of a lineon)	82, 810	307, 340
Sph	(sphere, in a genuine Euclidean space)	46	153
Sps	(spectral space, of a lineon)	82, 810	307, 340
sq	(inner square)	41	133
sqrt	(lineonic square root)	85	317
sqrt ⁺	(strict lineonic square root)	85	318
ssq	(sum-sequence, of a sequence)	08, 55	33, 191
str	(striction, of a mapping relative to given norms; absolute striction)	64	223, 227

		Section	Page
Sub	(subsetset, of a set)	01	3
sum	(summation mapping)	15	51
sup	(supremum of a set)	08	32
Supt	(support, of a family)	07	28
Sym	(space of symmetric linear mappings or lineons)	27, 41	92, 135
Sym ₂	(space of symmetric bilinear mappings)	24	83
tr	(trace, of a lineon)	26	89
Ubl	(unit ball, in a genuine inner-product space)	42	140
Unit	(set of unitary mappings, from a given unitary space to another; unitary group)	89	339
Usph	(unit sphere, in a genuine inner-product space)	42	140

Index of Terminology

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