SOME NOTATIONS AND CONVENTIONS

$\mathbb{N}$	set of natural integers : $\{0, 1, 2, \ldots\}$
$\mathbb{N}^*$	set of strictly positive integers : $\{1, 2, \ldots\}$
$\mathbb{Z}$	group of rational integers.
$\mathbb{Z}^*$	set of non zero rational integers.
δ_{ij}	Kronecker symbol.
$\mathbb{R}$	field of real numbers.
$\overline{\mathbb{R}}$	extended real line : $\{-\infty\} \cup \mathbb{R} \cup \{+\infty\}$, together with its usual total order.
$\mathbb{C}$	field of complex numbers.
$\mathbb{Q}$	field of quaternionic numbers.
$\mathbb{K}$	one of the fields $\mathbb{R}$, $\mathbb{C}$, $\mathbb{Q}$.
$\mathbb{K}^*$	set of non zero elements in $\mathbb{K}$.

* * * * *

$E_{\mathbb{K}}$	Banach space over $\mathbb{K}$.
$\mathrm{Lin}(E_{\mathbb{K}})$	space of all (not necessarily bounded) linear maps from $E_{\mathbb{K}}$ into itself; it is an associative algebra over $\mathbb{R}$ if $\mathbb{K}$ is $\mathbb{R}$ or $\mathbb{Q}$ and over $\mathbb{C}$ if $\mathbb{K} = \mathbb{C}$.
$L(E_{\mathbb{K}})$	Banach algebra of all bounded linear maps from $E_{\mathbb{K}}$ into itself, i.e. of all operators on $E_{\mathbb{K}}$.
$C(E_{\mathbb{K}})$	Banach algebra of all compact operators on $E_{\mathbb{K}}$.
$C_o(E_{\mathbb{K}})$	associative algebra of finite rank operators on $E_{\mathbb{K}}$.

* * * * *

$\mathcal{H}_{\mathbb{K}}$	Hilbert space over $\mathbb{K}$, denoted by $\mathcal{H}$ when there is no risk of confusion; the scalar product in $\mathcal{H}$ is denoted by $\langle\,\vert\,\rangle$.
$C_p(\mathcal{H}_{\mathbb{K}})$	with $p \in \overline{\mathbb{R}}$, $1 \leqslant p \leqslant \infty$, is one of Schatten's norm ideals of compact operators on $\mathcal{H}_{\mathbb{K}}$.
$C_\infty(\mathcal{H}_{\mathbb{K}})$	means the same as $C(\mathcal{H}_{\mathbb{K}})$.

$C_2(\mathcal{H}_{\mathbb{K}})$	is itself a Hilbert space for the scalar product defined by $\langle\langle X\|Y\rangle\rangle = \mathrm{trace}(XY^*)$.
$x\otimes\bar{y}$	with $x,y \in \mathcal{H}_{\mathbb{K}}$ is the operator of rank one defined on $\mathcal{H}_{\mathbb{K}}$ by $z \mapsto \langle z\|y\rangle x$.
X^*	the adjoint of the operator X on $\mathcal{H}_{\mathbb{K}}$.
$X\|E$	the restriction of an operator to a subset E of $\mathcal{H}_{\mathbb{K}}$.
$J_{\mathbb{R}}$	conjugation on $\mathcal{H}_{\mathbb{C}}$ (see appendix to Chapter I).
$J_{\mathbb{Q}}$	anticonjugation on $\mathcal{H}_{\mathbb{C}}$ (id.).

* * * * *

Lie groups are denoted by capital letters as G, $SO(k)$, $Sp(\mathcal{H}_{\mathbb{Q}}; C)$.

Lie algebras are denoted by underlined small letters as $\underline{g}$, $\underline{so}(k)$, $\underline{sp}(\mathcal{H}_{\mathbb{Q}}; C)$.

The connected component of the origin of a group as $O(\mathcal{H}_{\mathbb{R}}; C_2)$ is denoted by $O^+(\mathcal{H}_{\mathbb{R}}; C_2)$.

Classical Lie groups and Lie algebras of finite dimensions are denoted as in Helgason [84], chap. IX §4.

Derivations are usually denoted by Δ, automorphisms by φ. A Cartan subalgebra of a Lie algebra $\underline{g}$ is usually denoted by $\underline{h}$, and $\mathcal{R}$ is the set of non-zero roots of $\underline{g}$ with respect to $\underline{h}$.

* * * * *

[187.525] refers to the item n° 187.525 in the bibliography.

∎ indicates the end or the omission of a proof.