Preface to the 2009 reprinting

We continue to enjoy a steady stream of enthusiastic comments from readers all over the world, unabated even after 32 years! This reprinting appends known corrections to the Second Edition. In answer to one common query: Sorry, but we never did get around to writing the second volume that we had in mind when preparing the original Preface. Most of the time we still tend to be in different countries—usually continents—and busy with other things geometrical. Differential geometry remains at the forefront of mathematical research, with applications linking into many areas of physics through geometrical field theory and mathematical statistics through information geometry. We hope that you enjoy our presentation of the basics that underpin these new developments.

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Tensor Geometry

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Corrections to the Second Edition

page 19 line -2

... as on page 4, with its

page 45 line -3

$\bigcap\{X'|X'\text{an affine subspace of } X\text{containing } S\}$

page 49 line 10

$y + \frac{1}{2}\mathbf{d}(y,x) = ...$

page 52 line 7

... $\left(1 - \frac{\lambda(1-\mu)}{1-\lambda\mu}\right) z$ ...

page 55 line 16

... $= x' + \frac{1}{2}\mathbf{d}(x',y')$ if and only if ...

page 55 line 23

... $\to (Y,S)$ is affine ...

page 55 line 24

... is a mapping $T \to S$.

page 55 line 25

... Axioms Fi, Fii on p.6. Use ...

page 61 line 7 (centre of first equation)

$$... \begin{bmatrix} x^1 \\ \cdot \\ \cdot \\ \cdot \\ x^n \end{bmatrix} = \begin{bmatrix} b_1^1 & \cdot & \cdot & \cdot & b_n^1 \\ \cdot & & & & \cdot \\ \cdot & & & & \cdot \\ \cdot & & & & \cdot \\ b_1^n & \cdot & \cdot & \cdot & b_n^n \end{bmatrix}^{\leftarrow} ...$$

page 67 line 8

... space of all bilinear forms ...

page 74 line -15

is crucial. Continuity ...

page 86 line 4
... with $i = 1, \ldots k$, so that if $x \cdot y = 0$ for all $y \in B(k)$, ...
page 93 line -9
... but not all are eigenvectors ...
page 103 line 18
$x \otimes y + x' \otimes y' = ...$
page 104 line 15
$(g, x_2) \mapsto (x_1 \mapsto x_2(g(x_1)))$
page 106 line 9
$... \to X \bigotimes X \bigotimes X^* \bigotimes X \bigotimes X^*$
page 108 line -10
$= \boldsymbol{b'_i(x^j a^i_j).}$
page 112 line -10
... Prove that if $\boldsymbol{\Psi}$ is the ...
page 112 line -8
... we have $\boldsymbol{\Psi A(x, y) = Ax \cdot y}$.
page 112 line -6
... Prove that $\boldsymbol{\Psi A}$ is non-degenerate ...
page 130 line 13

$$\boldsymbol{\Rightarrow |\sum_{i=1}^{n} f_i(y) - \sum_{i=1}^{n} f_i(x)| < \epsilon}$$

page 150 line 19
(cf. Chapter II.§3).
page 152 line 13
... that this limit may exist ...
page 166 line -3
cannot reasonably ...
page 168 line 5
$\boldsymbol{f \circ \phi_a^{\leftarrow} \text{is } C^j \text{at } \phi_a(x) \Leftrightarrow f \circ \phi_b^{\leftarrow} \text{is } C^j \text{at } \phi_b(x)}$.
page 168 line 6
... situation of Definition 2.02, ...

page 168 line 8
$\psi' \circ f \circ \phi'^{\leftarrow}$**is** C^k**at** $\phi'(x) \Leftrightarrow \psi \circ f \circ \phi^{\leftarrow}$**is** C^k**at** $\phi(x)$**.**
page 200 last line
$v(w(fg) - w(v(fg)) =$ ...
page 203 line 17
... $\psi((x, y), t) = (x + ty, y)$ and
page 203 line 18
$\phi((x, y), t) = (x, y + t)$ we have ...