Addenda and Errata

There were few misprints in the original version which are listed here. There is also an important simplification made later on for the calculation of the K-theory of real projective spaces or bundles (IV.6), which is important in the solution of the vector field problem on the sphere by Adams. This simplification (which applies also to the equivariant case) is included in the following paper of the author

KAROUBI M. : Equivariant K-theory of real vector spaces and real projective spaces. Topology and its applications, 122 (2002) 531–546.

In $(XIV; -4)$ says: $[X, 0]$,
it should say: $[X, O]$

In $(10; 4)$ says: $X \in U_i \cap U_j \cap U_r \cap U_s$,
it should say: $x \in U_i \cap U_j \cap U_r \cap U_s$

In $(10; -1)$ says: $\alpha : E \to E'$,
it should say: $\alpha : E \to F$

In $(11; 9)$ says: $(h_s(x))^{-1} h^r(x) g_i^r(x)$,
it should say: $(h_s(x))^{-1} h_r(x) g_i^r(x)$

In $(11; -6)$ says: *The associated*,
it should say: *the associated*

In $(11; -1)$ says: $E_j|_{U_i \cap U_j} \xrightarrow{\hat{\lambda}_i|_{U_i \cap U_j}} F_j|_{U_i \cap U_j}$,
it should say: $E_j|_{U_i \cap U_j} \xrightarrow{\hat{\lambda}_j|_{U_i \cap U_j}} F_j|_{U_i \cap U_j}$

In $(12; 4)$ says: $g_{hi}(x) = \lambda_j(x)^{-1} \lambda_i(x)$,
it should say: $g_{ji}(x) = \lambda_j(x)^{-1} \lambda_i(x)$

In $(23; -14)$ says: $s(x) = \sum_{\alpha \in I} \alpha_i(x) s_i'(x)$,
it should say: $s(x) = \sum_{\alpha \in I} \alpha_i(x) s_i(x)$

In (25; 14) says: *for* $y \in U_x$,
it should say: *for* $y \in V_x$

In (26; −12) says: $g_\alpha : U \to \mathscr{E}(M, N)$,
it should say: $g_\alpha : U \to \mathscr{E}(M_\alpha, N)$

In (27; 3) says: $p_{x_0} f(x) = f(x) p_x$,
it should say: $p_x f(x) = f(x) p_{x_0}$

In (27; 5) says:

$$\begin{array}{ccccccc} 0 & \longrightarrow & \operatorname{Ker} p & \longrightarrow & X \times M & \xrightarrow{p_0} & X \times M \\ & & \vdots & & \downarrow \hat{f} & & \downarrow \hat{f} \\ 0 & \longrightarrow & X \times \operatorname{Ker} p_{x_0} & \longrightarrow & X \times M & \xrightarrow{p} & X \times M \end{array},$$

it should say:

$$\begin{array}{ccccccc} 0 & \longrightarrow & \operatorname{Ker} p_{x_0} & \longrightarrow & X \times M & \xrightarrow{p} & X \times M \\ & & \vdots & & \downarrow \hat{f} & & \downarrow \hat{f} \\ 0 & \longrightarrow & X \times \operatorname{Ker} p_{x_0} & \longrightarrow & X \times M & \xrightarrow{p_0} & X \times M \end{array}$$

In (30; −2) says: *in 6.9 is* ,
it should say: *in 6.10 is*

In (31; 5) says: *given in 6.10* ,
it should say: *given in 6.9*

In (37; −5) says: $\xi_f = \operatorname{Im} p$,
it should say: $\xi_g = \operatorname{Im} p$

In (40; 13) says: $= (1 - p - p + 2qp)$,
it should say: $= (1 - p - q + 2qp)$

In (53; −20) says: $\widehat{E \oplus F}$,
it should say: $\dot{\widehat{E \oplus F}}$

In (57; 16) says: $\operatorname{Ker}\left[K(X) \to H^0(X; \mathbb{Z})\right.$,
it should say: $\operatorname{Ker}\left[K(X) \to H^0(X; \mathbb{Z})\right]$

In (59; 17) says: $\approx [X, 0]'$,
it should say: $\approx [X, O]'$

In (62; 9) says: $d(E, F, \alpha^{-1})$,
it should say: $d(F, E, \alpha^{-1})$

In (65; 7) says: $f(\sigma(t)) = \sigma'(t)$,
it should say: $\tilde{f}(\sigma(t)) = \sigma'(t)$

In (70; 13) says: $\widetilde{K}(X/Y) \longrightarrow K(X) \longrightarrow$,
it should say: $K(X/Y) \longrightarrow K(X) \longrightarrow$

In (72; 14) says: *and* (E_1, φ_1) ,
it should say: *and* (E_1, α_1)

In (74; 20) says: *category (I.6.9)*,
it should say: *category (I.6.10)*

In (78; −4) says: $K(X/Y) \xrightarrow{\approx} K(X/Y)$,
it should say: $K(X'/Y') \xrightarrow{\approx} K(X/Y)$

In (80; −5) says:
$$\begin{array}{ccc} K(C'f) & \longrightarrow & \widetilde{K}(X) \\ \| & & \\ \end{array}$$
it should say:
$$\begin{array}{ccc} \widetilde{K}(C'f) & \longrightarrow & \widetilde{K}(X) \\ \| & & \\ \end{array}$$

In (81; −4) says: $\longrightarrow \widetilde{K}(S'(Y)) \longrightarrow \widetilde{K}(Cf)$,
it should say: $\longrightarrow \widetilde{K}(S'(Y)) \longrightarrow \widetilde{K}(C'f)$

In (83; −14) says: $\widehat{(Z - T)} \approx$,
it should say: $\dot{\widehat{(Z - T)}} \approx$

In (83; −2) says: $\widehat{(X - Y)} \approx$,
it should say: $\dot{\widehat{(X - Y)}} \approx$

In (84; −3) says: $\dot{Z} \approx Y \times [0,1]/Y \vee [0,1]$,
it should say: $\dot{Z} \approx \dot{Y} \times [0,1]/\dot{Y} \vee [0,1]$

In (84; −2) says: *class of* $(y, (1 + (1 - t)u)$,
it should say: *class of* $(y, 1 + (1 - t)u)$

In (85; 10) says: $Z - Y \times \overline{[0,1)} \simeq$,
it should say: $Z - Y \times [0,1) \simeq$

In (85; −1) says:
$$\begin{array}{ccc} & \downarrow & \\ K(\dot{Y} \times \mathbb{R}) & \longrightarrow & \end{array} ,$$
it should say:
$$\begin{array}{ccc} & \downarrow & \\ K(Y \times \mathbb{R}) & \longrightarrow & \end{array}$$

In (93; 15) says: *Let* $\dot{X}$ *and* Y,
it should say: *Let* $\dot{X}$ *and* $\dot{Y}$

In (95; 17)
says: *in I.1.29*,
it should say: *in 1.29*

In (97; −9)
says: $D|_Y$ *is an automorphism of* $E|_Y$,
it should say: $D|_{X'}$ *is an automorphism of* $E|_{X'}$

In (102; 7)
says: $= (v, \partial_v(w) \cdot d_v(\lambda))$,
it should say: $= (v, \partial_v(w), d_v(\lambda))$

In (102; 13)
says: $K_{\mathbb{C}}(B^2, S^2)$,
it should say: *of* $K_{\mathbb{C}}(B^2, S^1)$

In (112; 10)
says: $K^{-n}(X \times B^2, X \times S^{-1} \cup Y \times B^2)$,
it should say: $K^{-n}(X \times B^2, X \times S^1 \cup Y \times B^2)$

In (137; −9)
says: $f \cdot \rho(\lambda) = \rho(\lambda) \cdot f$,
it should say: $f \cdot \rho(\lambda) = \rho'(\lambda) \cdot f$

In (155; −1)
says: $ie_1 = \begin{pmatrix} 0 & -i \\ i & 0 \end{pmatrix}$,
it should say: $ie_1 = \begin{pmatrix} 0 & i \\ -i & 0 \end{pmatrix}$

In (175; 14)
says: $\widetilde{K}_{\mathbb{R}}(P_2(\mathbb{C}) \approx \mathbb{Z}$,
it should say: $\widetilde{K}_{\mathbb{R}}(P_2(\mathbb{C})) \approx \mathbb{Z}$

In (179; −16)
says: *Atiyah ([6]; cf. also 7.14*,
it should say: *Atiyah [6]; (cf. also 7.14)*

In (182; −9)
says: $K^{q-1}(P_S \times \mathbb{R})^n \oplus K^{q-1}(P_T \times \mathbb{R})^n \longrightarrow$
$K^{q-1}(P_{S\cap Y} \times \mathbb{R})^n \xrightarrow{\Delta} K^2(P_{S\cup Y})^n$,
it should say: $K^{q-1}(P_S \times \mathbb{R}) \oplus K^{q-1}(P_T \times \mathbb{R}) \longrightarrow$
$K^{q-1}(P_{S\cap Y} \times \mathbb{R}) \xrightarrow{\Delta} K^2(P_{S\cup Y})$

In (184; 3)
says: *Since* $(D_{x,v})^2 = Q_x(v)$,
it should say: *Since* $(\Delta_{x,v})^2 = Q_x(v)$

In (209; −13)
says: ${}^t(\widetilde{\rho}_x(v)) = \rho_x(v)$,
it should say: ${}^t(\widetilde{\rho}_x(v)) = \widetilde{\rho}_x(v)$

In (210; 12)
says: $-v(\lambda v + w')v^{-1} = \lambda v + w$ *since* v *and* w',
it should say: $-v(\lambda v + v')v^{-1} = \lambda v + v'$ *since* v *and* v'

In (211; −6)
says: $(C(V) \times_X C(V) \to C(V)$,
it should say: $C(V) \times_X C(V) \to C(V)$

In (211; −2)
says: *map* $V \times_X E$,
it should say: *map* $V \times_X E \to E$

In (212; −1)
says: *resp.* $(\beta \in H^1(X; \mathrm{Spin}(n))$,
it should say: *resp.* $(\beta \in H^1(X; \mathrm{Spin}(n)))$

In $(214; 5)$ says: $Z^2(X; \mathbb{Z}/2)$,
it should say: $H^2(X; \mathbb{Z}/2)$

In $(214; 5)$ says: *of* $H^2(X, \mathbb{Z}/2)$,
it should say: *of* $H^2(X; \mathbb{Z}/2)$

In $(215; -1)$ says: *a principle bundle*,
it should say: *a principal bundle*

In $(216; -6)$ says: $(\widetilde{\tau}'(1), \overline{\gamma}(1)$, *or*,
it should say: $(\widetilde{\tau}'(1), \overline{\gamma}(1))$, *or*

In $(221; 10)$ says: $+ (\lambda_{p+1})^2 + \cdots + (\lambda_{p+2})^2$,
it should say: $+ (\lambda_{p+1})^2 + \cdots + (\lambda_{p+q})^2$

In $(225; 6)$ says: *where* V,
it should say: *where* $\dot{V}$

In $(235; -2)$ says: *such that* $Y_{Y\subset} \bigcup U_i$,
it should say: *such that* $Y \subset \bigcup U_i$

In $(243; 10)$ says: *in the homermorphism*,
it should say: *in the homeomorphism*

In $(243; -9)$ says: $+ \eta' \sin\theta_1 \sin\theta_1$,
it should say: $+ \eta' \sin\theta_2 \sin\theta_1$

In $(247; 7)$ says: *and let* u,
it should say: *and let* $\widetilde{u}$

In $(247; -9)$ says: $\pi_1(S^+(W \oplus 1), S^+(W \oplus 1)|_Y \cup S(W) \rightarrow$,
it should say: $\pi_1(S^+(W \oplus 1), S^+(W \oplus 1)|_Y \cup S(W)) \rightarrow$

In $(247; -6)$ says: $K_r^{\xi \oplus n, n}(P(W \oplus 1), P(W \oplus 1)|_Y \cup P(W)$,
it should say: $K_r^{\xi \oplus n, n}(P(W \oplus 1), P(W \oplus 1)|_Y \cup P(W))$,

In $(306; column2; -16)$ says: $Z \wedge T$, $Z \wedge T$
it should say: $Z \wedge T$, $Z \vee T$

In $(306; column1; 20)$ says: $\begin{matrix} S(Z) \\ S'(Z) \end{matrix}$,
it should say: $\begin{matrix} S'(Z) \\ S(Z) \end{matrix}$