CORRECTIONS TO THE BOOK "DIMENSION THEORY IN DYNAMICAL SYSTEMS: CONTEMPORARY VIEWS AND APPLICATIONS"

(1) **page 24, line 2 from the bottom should be**

$\mathcal{F}'$ is *sufficient* if there are constants $K > 0$, $K_1 > 0$ and $K_2 > 0$ such that for any set $Z \subset X$, $\alpha \neq \alpha_C$, $\varepsilon > 0$ and any cover $\mathcal{G} \subset \mathcal{F}$ of Z with $\psi(\mathcal{G}) \leq \varepsilon$ one can find a cover $\mathcal{G}' \subset \mathcal{F}'$ of Z with $\psi(\mathcal{G}') \leq K\varepsilon$ such that

$$K_1 \sum_{U \in \mathcal{G}'} \xi(U)\eta(U)^\alpha \leq \sum_{U \in \mathcal{G}} \xi(U)\eta(U)^\alpha \leq K_2 \sum_{U \in \mathcal{G}'} \xi(U)\eta(U)^\alpha$$

and if $U = U(x, r) \in \mathcal{G}'$ then $x \in Z$.

(2) **page 25, line 20 should be**

$$\sum_{U \in \mathcal{G}} \xi(U)\eta(U)^{\beta-\gamma} \geq \sum_{U \in \mathcal{G}} \mu(U) \geq \mu(\Lambda_\rho) \geq \frac{1}{2}.$$

(3) **page 44, line 12 should be**

[F5]) that *for any Borel set* $Z \subset \mathbb{R}^m$

(4) **page 126, last line should be**

$$\geq \sum_{j:n(x_j)=N} r^{\bar{d}-2\varepsilon} \geq r^{\bar{d}-2\varepsilon} r^{2\varepsilon-\bar{d}} = 1.$$

(5) **page 76, lines 8 and 9 should be**

We choose the sequence n_k growing so fast that for every $\varepsilon > 0$

$$C_1^{-1} 3^{n_{2\ell}(1-\varepsilon)} \leq S_{n_{2\ell}} \leq C_1 3^{n_{2\ell}}, \quad C_1^{-1} 2^{n_{2\ell+1}} \leq S_{n_{2\ell+1}} \leq C_1 2^{n_{2\ell+1}(1+\varepsilon)},$$

lines 18 and 19 should be

$$\log 2 \geq \underline{CH}_Z(\sigma) \geq (1-\varepsilon)\log 2, \quad \log 3 \leq \overline{CH}_Z(\sigma) \geq (1+\varepsilon)\log 3.$$

The desired result follows since ε is arbitrary.

(6) **page 127, line 1** – erase "where C_4 is a constant.";
line 3 – replace C_4 by 1.

(7) **page 172, line 2 should be**

introduced by Tél [Tel]. It is defined as follows: for $q \geq 0$, $q \neq 1$
line 3 – replace r by $(1/r)$;
line 23 – replace r by $(1/r)$;
line 24 – replace ε by r.

(8) **page 183, lines 8 and 9** – replace $1/r$ by r.

(9) **page 187, line 20** – replace $\underline{I}(\mu)$ by $-\underline{I}(\mu)$;
line 21 – replace $\overline{I}(\mu)$ by $-\overline{I}(\mu)$.

(10) **page 198, line 34 should be**
for any $n > 0$, any branch h of f^{-n}, and any points $z \in J$, $x, y \in h(B(z, r_0))$

(11) **page 199, lines 3 – 7 should be**

$$\prod_{k=0}^{n} \frac{\psi(f^k(x))}{\psi(f^k(y))} \le \prod_{k=0}^{n} \left(1 + \frac{C_1}{c} \rho(f^k(x), f^k(y))^\beta\right),$$

where ρ is the distance in $\mathcal{M}$ induced by the Riemannian metric. By the expanding property we find that

$$\rho(f^k(x), f^k(y)) \le C_2 \lambda^{k-n} \rho(f^n(x), f^n(y)),$$

where $C_2 > 0$ is a constant. Therefore,

$$\prod_{k=0}^{n} \frac{\psi(f^k(x))}{\psi(f^k(y))} \le \prod_{k=0}^{n} \left(1 + C_1 c^{-1} C_2{}^{\beta} \lambda^{-\beta l}\right).$$

line 20 – replace X by $\mathcal{M}$.

(12) **page 201, lines 8 – 10 should be**
20.2 each basic set $R^{(j)}$ in the Moran cover contains a ball of radius $C_1 r$ and is contained in a ball of radius $C_2 r$, where $C_1 > 0$ and $C_2 > 0$ are constants independent of r and j. This implies the desired property of the Moran cover.

(13) **page 205, line 5 should be**
the proof of Theorem 13.1 one can show that there exists a positive
lines 9 – 13 should be

$$\begin{aligned} \sum_{C_{i_0 \dots i_N} \in \mathcal{G}} \sup_{x \in \chi(C_{i_0 \dots i_N})} \prod_{k=0}^{N} |a(f^k(x))|^{-\bar{d}+2\varepsilon} & \\ \ge \sum_{j:\, n(x_j) = N} \sup_{x \in \chi(C_{i_0 \dots i_N})} \prod_{k=0}^{n(x_j)} |a(f^k(x))|^{-\bar{d}+2\varepsilon} & \\ \ge \sum_{j: n(x_j) = N} \left(\frac{r}{K}\right)^{\bar{d}-2\varepsilon} \ge \left(\frac{r}{K}\right)^{\bar{d}-2\varepsilon} r^{2\varepsilon - \bar{d}} \ge C_2, & \end{aligned}$$

where $K > 0$ and $C_2 > 0$ are constants. We now have that for any $n > 0$ and $N > n$,

$$R(\Sigma_A^+, 0, \varphi, \mathcal{U}_n, N) = \sum_{C_{i_0\dots i_N}\in\mathcal{G}} \exp\left(\sup_{\omega\in C_{i_0\dots i_N}} \sum_{k=0}^{N} \varphi(\sigma^k(\omega))\right)$$

$$= \sum_{C_{i_0\dots i_N}\in\mathcal{G}} \sup_{x\in R^{(j)}} \prod_{k=0}^{N} |a(f^k(x))|^{-\bar{d}+2\varepsilon} \ge C_2,$$

lines 20 –24 should be

$\bar{d} \le s$. Since m is the equilibrium measure corresponding to the function $-s\log|a|$, we have that

$$P_J(-s\log|a|) = h_m(f) - s\int_J \log|a(x)|\,dm(x) = 0,$$

where $h_m(f)$ is the measure-theoretic entropy of m. This implies the last equality in Statement 1 and concludes the proof of the first statement. We now prove the other two statements. One can use formulae (21.20)

(14) **page 208, line 22** – replace α by δ;
line 23 – replace δ by α.

(15) **page 209, line 16** – replace "Gibbs" by "equlibrium".

(16) **page 211, line 19** – replace "Figure 17b" by "Figure 17a".

(17) **page 212, line 24** – replace (8.5) by (8.15).

(18) **page 213, line 4** – replace $R_{i_1\dots i_{n(x_j)}}$ by $R_{i_0\dots i_{n(x_j)}}$;
lines 13 − 15 – replace by the following argument:

Assume that the Markov partition is of sufficiently small size r_1. Since f is conformal for any $j = 1,\dots,m$ the distance between $f^{n(x_t)}(x_t)$ and $f^{n(x_t)}(x_j)$ does not exceed C_1r_1 where $C_1 > 0$ is a constant. In view of the second statement of Proposition 20.1, if $C_1r_1 \le r_0$, then for any $j = 1,\dots,m$

$$C_2 \le \frac{\prod_{k=0}^{n(x_t)-1} a(f^k(x_t))}{\prod_{k=0}^{n(x_j)-1} a(f^k(x_j))} \le C_3.$$

where $C_2 > 0$ and $C_3 > 0$ are constants. It follows that $|n(x_j) - n(x_t)| \le C_4$ where $C_4 > 0$ is a constant. Applying again Proposition 20.1 we obtain that

$$C_5 \le \frac{\prod_{k=0}^{n(x_t)-1} \psi(f^k(x_t))}{\prod_{k=0}^{n(x_j)-1} \psi(f^k(x_j))} \le C_6,$$

where $C_5 > 0$ and $C_6 > 0$ are constants.
line 18 – replace C_2 by ${C_5}^{-1}$.

(19) **page 214, line 2** – replace μ by ν.

(20) **page 217, line 26** – replace Q_l by $\tilde{J}_\alpha$.

(21) **page 218, line 4 should be**

$$\leq C_{11}\nu(B(y, C_{10}r)) \leq C_{11}\nu(R_{i_0\dots i_n}),$$

(22) **page 222, last line** – replace $h_{\hat{J}(f)}h_J(f)$ by $h_{\hat{J}(f)} = h_J(f)$.

(23) **page 225, lines 22 – 24** – erase the sentence in the parentheses.

(24) **page 227, line 6** – replace M by $\mathcal{M}$.
last line – replace "The" by "A hyperbolic".

(25) **page 228, line 25 should be**
$\Omega(f)$ of an Axiom A diffeomorphism f can be decomposed into finitely many disjoint closed f-invariant locally
line 32 – replace $f^{-1}\text{int}R_i$ by $f^{-1}\text{int}R_j$.

(26) **page 230, lines 16 and 17** – replace superscript u by s.

(27) **page 232, line 2** – replace $C_{i_0\dots i_{n(\omega}}$ by $C_{i_0\dots i_{n(\omega'}}$.

(28) **page 234, line 4** – replace $C^+_{\hat{i}_0}$ by $\cup_{\hat{i}_0} C^+_{\hat{i}_0}$.

(29) **page 235, lines 6, 7, and 8 should be**
Since the measure $\mu^{(u)}$ is the stable part of the pull back of the measure $\kappa^{(u)}$ (i.e., the projection of this pull back to Σ^+_A) for every $x \in \Lambda$ and any basic set $R^{(u)}_{i_0\dots i_n}$ containing x we have that

(30) **page 238, line 1** – replace δ by α and (20.9) by (20.10).

(31) **page 246, line 8** – replace [W] by [Wi].

(32) **page 247, lines 3 and 4 should be**
We undertake the complete multifractal analysis of equilibrium measures on a locally maximal hyperbolic set Λ of a $C^{1+\alpha}$ diffeomorphism f assuming that f is

(33) **page 256, line 10** – replace "Theorem 24.2" by "Theorem 24.3".

(34) **page 257, lines 5 – 7** – erase the sentence in the parentheses.

(35) **page 258, line 9** – replace (3) by (4).

(36) **page 262, line 25** – replace “Gibbs” by “equilibrium”.

(37) **page 263, line 2** – replace X by J.

(38) **page 300, last reference** – replace [W] by [Wi].