Errata-Corrige-Addenda to the book "Aspects of the ergodic, qualitative and statistical theory of motion", by G. Gallavotti, F. Bonetto, G. Gentile

• problem [2.2.17]: line before the (*Hint:*
if and only if **should be** even if

• problem [2.2.17]: line before the (*Hint:*
are uniformly **should be** are not uniformly

• l. 5 after (3.1.3): $N = n2^k + r$. **should be** $N = m\,2^k + r$.

• l. 8 after (3.1.3): $N = n2^k + r$. **should be** $N = m\,2^k + r$.

• l. 3 and l. 6 before problem [3.2.2]: σ'_{n-1} **should be** σ'_{u-1}

• l. 1 before (7.1.22): Then one can prove (see problem [7.1.6]) that one has **should be** Then (see problem [7.1.6]) one has $\varphi^T(\gamma) = 1$ and for $n > 1$:

• formula (8.1.16): $\underline{\omega}$ **should be** $\underline{\omega}_0$

• l. 12 before definition (8.3.1): $\underline{\omega}$ **should be** $\underline{\omega}_0$

• In definition (8.3.1): *Given a* scaling factor γ **should be** *Given a* scaling factor γ *and setting* $\underline{\omega} = C\underline{\omega}_0$

• l. 5 after (8.3.5): $\underline{\omega}_0$ **should be** $\underline{\omega}$

• l. -9 of Appendix 8.3: $\underline{\omega}_0$ **should be** $\underline{\omega}$ (thrice)

• l. 2 of footnote 1 of Appendix 8.3: $\underline{\omega}_0$ **should be** $\underline{\omega}$

• in all Section 8.4 $\underline{\omega}_0$ **should be** $\underline{\omega}$

• l. - 4 before (8.4.1): $n_{\lambda_T} < n_T$. **should be replaced with** $n_{\lambda_T} < n_T$, and $\underline{\omega} = C\underline{\omega}_0$.

• l. - 1 before (8.4.1): is **shoud be replaced with** is $C^{2|\Lambda(\widetilde{T})|}$ times

• l. - 1 before (8.4.3): is **shoud be replaced with** is $C^{2|\Lambda(\vartheta)|}$ times

• problem [8.4.1]: with constants C, τ. **should be replaced with** with constant C and exponent τ.

• problem [8.4.3]: $\underline{\omega} = C_0\underline{\omega}_0$. **should be replaced with** $\underline{\omega} = C_0\underline{\omega}_0$, where $\underline{\omega}_0$ is a Diophantine vector with constant C and exponent τ.

• l. 3 after (9.1.4): $\gamma_{n-1} \le |\underline{\omega} \cdot \underline{\nu}| < \gamma_n$ **should be** $2^{n-1} \le |\underline{\omega} \cdot \underline{\nu}| < 2^n$.

• l .1 before (9.1.5): so that **should be replaced with** so that, if $\underline{\nu}^0_\lambda$ is defined as the momentum that would flow through the line λ if the line entering the self-energy graph had momentum $\underline{\nu} = \underline{0}$, cf. remarks following (8.3.5),

• formula (9.1.5): $\gamma_{n^0_\lambda - 1}$ **should be** $2^{n^0_\lambda - 1}$, and $\gamma_{n^0_\lambda}$ **should be** $2^{n^0_\lambda}$.

• l. 4 after (9.1.5): the sentence between parentheses "(indeed by our choice of $\gamma = 2$ we have $\gamma_{n_1} + \gamma_{n_2} + \ldots < 2^{n+1}$, see also (8.3.5))" **should be deleted**.

• l. 2 after (9.1.7): self-energy graphs which can be obtained by using the propagators
should be
self-energy graphs that can be inserted on a line of momentum $\underline{\nu}$ and that are computed by using the propagators

• l. 1 after (9.1.8): We set $M^{[0]}(\underline{\omega}_0 \cdot \underline{\nu}; \varepsilon) \equiv 0$. **should be**
We set $M^{[0]}(\underline{\omega}_0 \cdot \underline{\nu}; \varepsilon) \equiv 0$. If a line λ has scale $-d_\lambda$ the self-energy graphs that can be inserted on λ necessarily consist of lines with scales $> -d_\lambda$ *therefore* $M^{[d]}(\underline{\omega} \cdot \underline{\nu}_\lambda) \equiv M^{[d_\lambda]}(\underline{\omega} \cdot \underline{\nu})$ for $d > d_\lambda$.

• formula (9.1.10): $|M^{[d]}(x; \varepsilon)| \le Cx^{-2}$ **should be** $\|M^{[d]}(x; \varepsilon)\| \le Cx^2 |\varepsilon|^2$.

• l. 1 after(9.2.1): Then there is a constant B_f such that one has **should be**
Then given $\kappa > 0$ there is a constant B_f such that, setting $M(\vartheta) = \sum_{v \in V(\vartheta)} |\underline{\nu}_v|$,

• l. 3 after (9.2.5) wem did **should be** we did

• at the end of the proof of Lemma (9.2.1): **one should insert the paragraph:** Finally the last factor in the second of (9.2.2) can be inserted by further increasing the constant that multiplies ε because $\sum_v |\underline{\nu}_v| \le kN$ as f is a trigonometric polynomial of degree N and $1 = e^{\kappa \sum_v |\underline{\nu}_v|} e^{-\kappa \sum_v |\underline{\nu}_v|} \le e^{N \kappa k} e^{-\kappa \sum_v |\underline{\nu}_v|}$.

• l. 4 in lemma (9.2.2):
Moreover, if $2^{q-1} < |\underline{\omega} \cdot \underline{\nu}| \le 2^q$ and ε_0 is small enough, the matrix $M^{[d]}(\underline{\omega}_0 \cdot \underline{\nu}; \varepsilon)$ can be analytically continued in the full disk $|\underline{\omega} \cdot \underline{\nu}| \le 2^q$ and satisfies the bound
should be
Moreover the matrix $M^{[-q]}(x; \varepsilon)$ is the restriction to the x's of the form $x = \underline{\omega} \cdot \underline{\nu}$ with $\underline{\nu}$ of scale $\le q$ of an analytic function of x in the disk $|x| \le 2^q$ if ε_0 is small enough; it satisfies the bound

• l. 3 after (9.2.9): one has $\widetilde{T} = T$). **should be** so that for all clusters T one has $\widetilde{T} = T$, *i.e.* T contains no self-energy graph, cf. definition (8.3.5)).

• l. 1 before (9.2.11): It also follows that there exists the limit **should be** It also follows that there exists the limit (reached at a finite value of d if x is fixed because $M^{[d]}(x;\varepsilon)$ becomes identically equal to $M^{[d_0]}(x;\varepsilon)$ if $x = \underline{\omega}\cdot\underline{\nu}_\lambda$ with λ on scale $-d_0$)

• (9.2.11): ε_0^{2d} **should be** $\varepsilon^{2d}x^2$

• l. 1 after (9.2.11):
for some constants $\hat{B}_1$ and $\hat{B}_2$. **should be**
for some constants $\hat{B}_1$ and $\hat{B}_2$ and for $|\varepsilon| < \varepsilon_0$ with ε_0 small enough.

• l. 2 after (9.2.12): **delete from here all the way to the end of proof and replace text by**
Proof: For $-d <$ scale of x the difference is 0. For $-d \geq$ scale of x this is implied by (9.2.10). ■

• after Remark (2) to Lemma (9.2.4): **one should insert the paragraph:**
(3) The above remarks show the validity of the lemma: it is however interesting to check its validity directly by substituin of the series for $\overline{\underline{h}}^{[\infty]}(\underline{\psi},\varepsilon)$ into the equation (8.1.12) that it solves. Therefore we discuss how to perform the check. This provides a useful method in similar cases in which it is not known or it is not true that generalizations of Lindstedt series converge and their solution is produced by summation rules of divergent series: see Appendix 9.2 for an example in which this situation arises.

• l. 10 in Fig.(10.3.1) caption ‘: with wtih **should be** with

• l. 4 before (10.1.5): checked form **should be** checked from

• l. 1 before (10.1.5): (10.1.1) **should be** (10.1.3)

• l. 2 after (10.1.6): $(1 \pm \sqrt{5})/2$ **should be** $\lambda_\pm$

• l. 6 before (10.3.9): $\Gamma^0_\varepsilon(\underline{\varphi})$ **should be** $\Gamma_\varepsilon(\underline{\varphi})$

• l. 4 before (10.3.9): (10.3.5) **should be** (10.3.7)

• l. 4 before (10.3.2): an unstable **should be** and unstable

• E. (10.3.7) : $S_0\varphi$ **should be** $S_\varepsilon(\underline{\varphi})$
• l. 2 in problem [10.4.3]: $g\xi$ **should be** g_ξ

• l. 2 in problem [10.4.3]: $g(\varepsilon,\underline{\psi})$ **should be** $\underline{g}(\varepsilon,\underline{\psi})$

• **add reference** [Ru97] Ruelle, D.: *Differentiation of SRB states*, Communications in Mathematical Physics, **187** (1997), 227–241.