

Errata-Corrige-Addenda-Variationes to the book
 “*Foundations of fluid mechanics*” (**Second printing**), by G. Gallavotti

Note:

- l. 2 means line 2 (from top of page);
 l. -3 means line 3 from bottom of page
 action to be taken for correction is typed in bold face

Corrections to the second printing (page numbers of the second ed.)

- line 3 before [1.1.4]: if $f(\underline{w}) = e^{\frac{-m\underline{w}^2}{2k_B T}} \left(\frac{m}{2\pi k_B T}\right)^{3/2}$ **should be** where $\tau = \lambda/\bar{v}$ is the free flight time, if $f(\underline{w}) = e^{\frac{-m\underline{w}^2}{2k_B T}} \left(\frac{m}{2\pi k_B T}\right)^{3/2}$
- p. 31: l. -9: [Eb77] **should be** [Eb77],[Eb82]
- p. 42: l. 14: $\frac{M_L}{M_T} \left(\frac{3}{2}\alpha^2 + \right)$ **should be** $\left(\frac{M_L}{M_T} \frac{3}{2}\alpha^2 + \right)$
- Sec. 1, problem [1.1.5]: add call to index for “Clausius–Maxwell relation”
- p. 166: l. 1 after (3.2.17): It also satisfies **should be** (iii) It also satisfies
- p. 167: l. 4 after (3.2.19) **delete** Property (iv), evident for $\underline{\gamma}^R(t)$, is proved in the same way.
- p. 167: l. 6 in remark 2: (1.3.16) **should be** (3.2.16)
- p. 168: l.1 after (3.2.22): the first term in (3.2.9) as $|\underline{\gamma}_k^0| e^{-k^2 \nu t} \leq C_{\alpha+\eta}^0 |\underline{k}|^{-\alpha-\eta}$ **should be** the first and second terms in (3.2.9) by $|\underline{\gamma}_k^0| + \frac{|\underline{\varphi}_k|}{\nu k^2} \leq C_{\alpha+\eta}^0 |\underline{k}|^{-\alpha-\eta}$
- p. 169: l. 4,5 in remark 1: to the initial datum (*i.e.* $|\underline{\gamma}_k^0| |\underline{k}|^\alpha \leq C_\alpha^0$) **should be** to the initial datum and the forcing (*i.e.* $(|\underline{\gamma}_k^0| + \frac{|\underline{\varphi}_k|}{\nu k^2}) |\underline{k}|^\alpha \leq C_\alpha^0$)
- p. 169: l. 2 and 4 in remark 3: C_α^0 **should be** \overline{C}_α^0

- p. 169: in (3.2.23): **add** $+\frac{|\varphi_k|}{\nu k^2}$ in the first and second line
and add $+\max\frac{|k|^{\alpha+\eta}|\varphi_k|}{\nu|k|^2}$ in the third line.
- p. 170: l. 2 after (3.2.27): (2.2.26) **should be** (3.2.25)
- p. 174: l. 11 in remark 1: $\underline{\gamma}(t)$ **should be** $\underline{\gamma}_k(t)$
- p. 175: l. 4 in remark: in general **should be** ,in general,
- p. 183: l. 1 in Proposition 1:
There **should be** Let $\underline{u}^0, \underline{g} \in C^\infty(\Omega)$. There
- p. 183: l. 1 after (3.3.14): $t \in [0, T_0]$ **should be** $t \in [t_0, t_0 + T_0]$
- p. 185: l. 1 after (3.3.25): $\nu t \leq L^2$ **should be** $\nu(t - t_0) \leq L^2$
- p. 186: l. 1 before (3.3.30): rremark **should be** remark
- p. 188: l. 5 after (3.3.36): $\| |k|(\underline{\gamma}^1 - \underline{\gamma}^2) \|_2$ **should be** $\| |k|(\underline{\gamma}^1 - \underline{\gamma}^2) \|_2^2$
- p. 189: l. 4 in Definition 2: **delete** or “L-weak solutions”
- p. 189: l. 2 after (3.3.42): $\mathcal{E}_n^0 \stackrel{def}{=} \tilde{\mathcal{E}}_n \supset \cup_{t \in \mathcal{E}_n} (t, t + \tau_n)$ **should be**
 $\mathcal{E}_n^0 \stackrel{def}{=} \cup_{t \in \mathcal{E}_n} (t, t + \tau_n)$
- p. 190: l. 1 before Proposition 4: corollary **should be** corollary,
where $\nu = 1$ for simplicity,
- p. 196: l. 7 after (3.3.61): by integration by parts. **should be**
because of the periodicity of the \underline{y} integration.
- p. 196, l. 1 before Bibliography: majorizations). **should be**
majorizations. In a similar way one can check that the derivative is contin-
uous).)
- p. 201, l. -1: in question **should be**
in question, see Proposition II in Sect. §3.3 and remark (2) following it,

- p. 202: (3.4.16) **should be**

$$\underline{x} \in S(\underline{x}, r) \quad \text{and} \quad t \in (\vartheta, \vartheta + T_{cr} \min(1, \frac{F}{R_r^4 + R_{gr}^2})) \quad (3.4.16)$$

- p. 202, l. 2: **delete l. 2, completely**

- p. 202, l. -1: $\underline{x} \times (\vartheta_i, \vartheta_i + \frac{r_i^2}{\nu} \frac{F}{2\varepsilon^2})$ **should be** $\underline{x} \times (\vartheta_i, \vartheta_i + \frac{r_i^2}{\nu})$

- p. 225, in problem [3.5.14]: **delete the entire hint**

- appendix to Sec. (5.5): add in theorem I' end of (ii) a reference to the index for the item “dynamical base”

- p. 498: **add reference:**

[Eb77] **Ebin, D.G.:** *The Motion of Slightly Compressible Fluids Viewed as a Motion With Strong Constraining Force*, Annals of Mathematics, **105**, 141–200, 1977.

- p. 500, Ref [EM94]: 981 **should be** 981-1004