



## Corrigendum

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# CORRIGENDUM

of

## Some remarks on materials with memory: heat conduction and viscoelasticity

*Sandra CARILLO*

Throughout there are 16 missing “=” signs. Here follows a list of corrected formulas:

1. formula (2.2) page 165 (1 “=” sign missing)

– ORIGINAL 
$$\mathbf{q}(\mathbf{x}, t) - \int_0^\infty k(\mathbf{x}, \tau) \nabla \theta(\mathbf{x}, t - \tau) d\tau \quad ,$$

– CORRECTED 
$$\mathbf{q}(\mathbf{x}, t) = - \int_0^\infty k(\mathbf{x}, \tau) \nabla \theta(\mathbf{x}, t - \tau) d\tau \quad ,$$

2. formula (2.6) page 165 (2 “=” signs missing)

– ORIGINAL 
$$\mathbf{q}(t) - \int_0^\infty k(\tau) \mathbf{g}(t - \tau) d\tau \quad \text{or} \quad \mathbf{q}(t) \int_0^\infty \dot{k}(\tau) \bar{\mathbf{g}}^t(\tau) d\tau;$$

– CORRECTED 
$$\mathbf{q}(t) = - \int_0^\infty k(\tau) \mathbf{g}(t - \tau) d\tau \quad \text{or} \quad \mathbf{q}(t) = \int_0^\infty \dot{k}(\tau) \bar{\mathbf{g}}^t(\tau) d\tau;$$

3. formula (2.7) page 166 (1 “=” sign missing)

– ORIGINAL 
$$\bar{\mathbf{g}}^t(\tau) \int_{t-\tau}^t \mathbf{g}(s) ds$$

– CORRECTED 
$$\bar{\mathbf{g}}^t(\tau) = \int_{t-\tau}^t \mathbf{g}(s) ds$$

4. formula (2.10) page 166, on the r.h.s. (1 “=” sign missing)

– ORIGINAL

$$\tilde{Q}\{\bar{\mathbf{g}}^t\} := \int_0^\infty \dot{k}(s) \bar{\mathbf{g}}^t(s) ds \implies \forall T > 0, \quad \tilde{Q}\{\bar{\mathbf{g}}^{t+T}\} \int_0^\infty \dot{k}(s) \bar{\mathbf{g}}^{t+T}(s) ds,$$

– CORRECTED

$$\tilde{Q}\{\bar{\mathbf{g}}^t\} := \int_0^\infty \dot{k}(s) \bar{\mathbf{g}}^t(s) ds \implies \forall T > 0, \quad \tilde{Q}\{\bar{\mathbf{g}}^{t+T}\} = \int_0^\infty \dot{k}(s) \bar{\mathbf{g}}^{t+T}(s) ds,$$

5. formula (2.11) page 166 (1 “=” sign missing)

– ORIGINAL

$$\mathbf{q}(t+T) : \int_0^\infty \dot{k}(s) \bar{\mathbf{g}}^{t+T}(s) ds .$$

– CORRECTED

$$\mathbf{q}(t+T) := \int_0^\infty \dot{k}(s) \bar{\mathbf{g}}^{t+T}(s) ds .$$

6. formula (2.12) page 166 (1 “=” sign missing)

– ORIGINAL

$$\theta(t)\theta_\star(0) + \int_0^t \dot{\theta}_P(\xi) d\xi , \quad \bar{\mathbf{g}}^t(s) = \begin{cases} \int_{t-s}^t \mathbf{g}_P(\xi) d\xi & 0 \leq s < t \\ \int_0^t \mathbf{g}_P(\xi) d\xi + \bar{\mathbf{g}}_\star^0(s-t) & s \geq t , \end{cases}$$

– CORRECTED

$$\theta(t) = \theta_\star(0) + \int_0^t \dot{\theta}_P(\xi) d\xi , \quad \bar{\mathbf{g}}^t(s) = \begin{cases} \int_{t-s}^t \mathbf{g}_P(\xi) d\xi & 0 \leq s < t \\ \int_0^t \mathbf{g}_P(\xi) d\xi + \bar{\mathbf{g}}_\star^0(s-t) & s \geq t , \end{cases}$$

7. formula (3.9) page 169 (1 “=” sign missing)

– ORIGINAL

$$\langle f, \phi \rangle : \int_0^{+\infty} f(t) \cdot \phi(t) dt = \frac{1}{2\pi} \int_{-\infty}^{+\infty} f_+(\omega) \cdot \overline{\phi_+(\omega)} d\omega ,$$

– CORRECTED

$$\langle f, \phi \rangle := \int_0^{+\infty} f(t) \cdot \phi(t) dt = \frac{1}{2\pi} \int_{-\infty}^{+\infty} f_+(\omega) \cdot \overline{\phi_+(\omega)} d\omega ,$$

8. formula (3.12) page 169 (1 “=” sign missing)

– ORIGINAL  $\mathcal{H}(\mathbb{R}^+, \mathbb{R}^3) : \left\{ \phi : \mathbb{R}^+ \rightarrow \mathbb{R}^3 : \left| \int_{-\infty}^{+\infty} k_c(\omega) \phi_+(\omega) \cdot \overline{\phi_+(\omega)} d\omega \right| < \infty \right\} .$

– CORRECTED  $\mathcal{H}(\mathbb{R}^+, \mathbb{R}^3) := \left\{ \phi : \mathbb{R}^+ \rightarrow \mathbb{R}^3 : \left| \int_{-\infty}^{+\infty} k_c(\omega) \phi_+(\omega) \cdot \overline{\phi_+(\omega)} d\omega \right| < \infty \right\} .$

9. formula (3.13) page 170 (1 “=” sign missing)

– ORIGINAL

$$\langle f, \phi \rangle_k : \int_{-\infty}^{+\infty} k_c(\omega) f_+(\omega) \cdot \overline{\phi_+(\omega)} d\omega$$

– CORRECTED

$$\langle f, \phi \rangle_k := \int_{-\infty}^{+\infty} k_c(\omega) f_+(\omega) \cdot \overline{\phi_+(\omega)} d\omega$$

10. formula (3.15) page 170 (1 “=” sign missing)

– ORIGINAL

$$\langle \mathbf{I}, \mathbf{g} \rangle : \frac{1}{2\pi} \int_{-\infty}^{+\infty} \mathbf{I}_+(\omega) \cdot \overline{\mathbf{g}_+(\omega)} d\omega ,$$

– CORRECTED

$$\langle \mathbf{I}, \mathbf{g} \rangle := \frac{1}{2\pi} \int_{-\infty}^{+\infty} \mathbf{I}_+(\omega) \cdot \overline{\mathbf{g}_+(\omega)} d\omega ,$$

11. formula (3.16) page 170 (1 “=” sign missing)

– **ORIGINAL**  $\mathcal{H}'_k(\mathbb{R}^+, \mathbb{R}^3) : \{f : \mathbb{R}^+ \rightarrow \mathbb{R}^3 \text{ s.t. } |\langle f, \phi \rangle_k| < \infty, \forall \phi \in \mathcal{H}_k(\mathbb{R}^+, \mathbb{R}^3)\}$ ,

– **CORRECTED**

$$\mathcal{H}'_k(\mathbb{R}^+, \mathbb{R}^3) := \{f : \mathbb{R}^+ \rightarrow \mathbb{R}^3 \text{ s.t. } |\langle f, \phi \rangle_k| < \infty, \forall \phi \in \mathcal{H}_k(\mathbb{R}^+, \mathbb{R}^3)\},$$

12. formula (3.20) page 171, on the r.h.s. (1 “=” sign missing)

– **ORIGINAL**  $\mathcal{W}(\sigma(t), \mathbf{g}_P) := \widetilde{W}\{\bar{\mathbf{g}}^t; \mathbf{g}_P\} \iff \mathcal{W}(\sigma(t), \mathbf{g}_P) \widehat{W}\{\bar{\mathbf{g}}^t; \mathbf{g}_P\}$ .

– **CORRECTED**  $\mathcal{W}(\sigma(t), \mathbf{g}_P) := \widetilde{W}\{\bar{\mathbf{g}}^t; \mathbf{g}_P\} \iff \mathcal{W}(\sigma(t), \mathbf{g}_P) = \widehat{W}\{\bar{\mathbf{g}}^t; \mathbf{g}_P\}$ .

13. formula (6.1) page 176 (2 “=” signs missing)

– **ORIGINAL**  $f_s(\omega) \int_0^\infty f(\tau) \sin \omega\tau \, d\tau$  ,  $f_c(\omega) \int_0^\infty f(\tau) \cos \omega\tau \, d\tau$  ,

– **CORRECTED**  $f_s(\omega) = \int_0^\infty f(\tau) \sin(\omega\tau) \, d\tau$  ,  $f_c(\omega) = \int_0^\infty f(\tau) \cos(\omega\tau) \, d\tau$  ,

14. formula (6.3) page 176, on the l.h.s. (1 “=” sign missing)

– **ORIGINAL**  $\tilde{f}(\omega) \int_{-\infty}^\infty f(\tau) e^{-i\omega\tau} \, d\tau$  hence  $\tilde{f}(\omega) = f_c(\omega) - if_s(\omega)$  ,

– **CORRECTED**  $\tilde{f}(\omega) = \int_{-\infty}^\infty f(\tau) e^{-i\omega\tau} \, d\tau$  hence  $\tilde{f}(\omega) = f_c(\omega) - if_s(\omega)$  ,