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Erratum

Erratum to: Acoustic radiation force due to incident plane-progressive waves on coated spheres immersed in ideal fluids

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Concerning equations (13), (15) as well as the expressions for $\langle F_t \rangle$ in (19) and the radial $U_r^{(2,3)}$ and angular component $U_\theta^{(2,3)}$ of the displacement vector $\mathbf{U}$ inside the layered sphere in Appendix A in [1], an error of transcription occurred.

The functions Ψ_2 and Ψ_3 given by (13) and (15), respectively, should have been printed as,

$$\Psi_2(r,\theta) = \Phi_0 \sum_{n=1}^{\infty} i^n (2n+1) \left(D_n j_n(k_{S,2}r) + E_n n_n(k_{S,2}r)\right) \frac{d}{d\theta}\left(P_n(\cos\theta)\right), \quad (13)$$

and

$$\Psi_3(r,\theta) = \Phi_0 \sum_{n=1}^{\infty} i^n (2n+1) G_n j_n(k_{S,3}r) \frac{d}{d\theta}\left(P_n(\cos\theta)\right). \quad (15)$$

The expression for $\langle F_t \rangle$ in (19) should have been printed as

$$\langle F_t \rangle = -\frac{\pi c^2 \rho_1}{c_1^2} \left\langle \int_0^{\pi} \left(\frac{\partial \varphi_1}{\partial t}\right)_{r=c}^2 \sin\theta \cos\theta \, d\theta \right\rangle.$$

Finally the expressions for $U_r^{(2,3)}$ and $U_\theta^{(2,3)}$ in Appendix A should have been printed as:

$$U_r^{(2,3)} = \frac{\partial \Phi_{2,3}}{\partial r} + \frac{1}{r\sin\theta} \frac{\partial(\Psi_{2,3}\sin\theta)}{\partial\theta}$$

and

$$U_\theta^{(2,3)} = \frac{1}{r}\frac{\partial \Phi_{2,3}}{\partial\theta} - \frac{1}{r}\frac{\partial(r\Psi_{2,3})}{\partial r},$$

respectively. These changes bring the above-mentioned expressions in agreement with expressions given by various other authors. It is important to emphasize that the derivations leading to the determination of the scattering coefficients A_n and their corresponding matrix elements in Appendix B, as well as the computational plots shown in [1] used the correct expressions for Ψ_2, Ψ_3, $\langle F_t \rangle$, $U_r^{(2,3)}$ and $U_\theta^{(2,3)}$.

References

1. F.G. Mitri, Eur. Phys. J. B **43**, 379 (2005)

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