

# Erratum: Magneto-thermo-acoustics from magnetic nanoparticles by short bursting or frequency chirped alternating magnetic field: a theoretical feasibility analysis. *Med. Phys.* 40(6): p. 063301 (2013)

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We correct one typographical error that has occurred in four equations in *Med Phys*, 2013, 40(6): p. 063301. © 2019 American Association of Physicists in Medicine [<https://doi.org/10.1002/mp.13722>]

The Equations (21), (30), (36) and (37) of the original paper [1] were given with a typographical error at the second term of the left-hand side of the equation. The denominator of the coefficient preceding the time or frequency function shall be the acoustic speed squared, not the acoustic speed itself. The Equations (21), (30), (36) and (37) with the typographical error corrected are presented in the following:

$$\nabla^2 p_{TD}(\vec{r}, t) - \frac{1}{(c_a)^2} \frac{\partial^2}{\partial t^2} p_{TD}(\vec{r}, t) = -\frac{\beta}{C_p} \frac{\partial}{\partial t} \Delta q_{TD}(\vec{r}, t) \quad (21)$$

$$\begin{aligned} \nabla^2 \tilde{p}_{FD}(\vec{r}, \tilde{\omega}) + \frac{(\tilde{\omega})^2}{(c_a)^2} \tilde{p}_{FD}(\vec{r}, \tilde{\omega}) \\ = -\frac{i\omega\beta}{C_p} \Delta \tilde{Q}_{FD}(\vec{r}, \tilde{\omega}) \end{aligned} \quad (30)$$

$$\begin{aligned} \nabla^2 p_{TD}(\vec{r}, t) - \frac{1}{(c_a)^2} \frac{\partial^2}{\partial t^2} p_{TD}(\vec{r}, t) \\ = -\frac{\beta}{C_p} \frac{\partial}{\partial t} \Delta q_{TD}(\vec{r}, t) + \nabla \cdot [\vec{F}(\vec{r}, t)] \end{aligned} \quad (36)$$

$$\begin{aligned} \nabla^2 \tilde{p}_{FD}(\vec{r}, \tilde{\omega}) + \frac{(\tilde{\omega})^2}{(c_a)^2} \tilde{p}_{FD}(\vec{r}, \tilde{\omega}) \\ = -\frac{i\omega\beta}{C_p} \Delta \tilde{Q}_{FD}(\vec{r}, \tilde{\omega}) + \nabla \\ \cdot [\vec{F}(\vec{r}, \tilde{\omega})] \end{aligned} \quad (37)$$

The conclusions are unaffected by the corrections. The Eqs. [(21) and (30)] appeared in the “theory” section but were not involved in the numerical implementations based on which the conjecture was made. The Eqs. [(36) and (37)] appeared in the “discussion” section where no numerical analysis was involved.

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## REFERENCE

1. Piao D, Towner RA, Smith R, Chen WR. Magnetoacoustics from magnetic nanoparticles by short bursting or frequency chirped alternating magnetic field: a theoretical feasibility analysis. *Med Phys*. 2013;40(6):063301.