

Hydromagnetic flow of fluid with variable viscosity in a uniform tube with peristalsis

This article has been downloaded from IOPscience. Please scroll down to see the full text article.

2004 J. Phys. A: Math. Gen. 37 1461

(<http://iopscience.iop.org/0305-4470/37/4/C01>)

View [the table of contents for this issue](#), or go to the [journal homepage](#) for more

Download details:

IP Address: 171.66.16.64

The article was downloaded on 02/06/2010 at 19:18

Please note that [terms and conditions apply](#).

Corrigendum

Hydromagnetic flow of fluid with variable viscosity in a uniform tube with peristalsis

Abd El Hakeem Abd El Naby, A E M El Misiery and I I El Shamy 2003 *J. Phys. A: Math. Gen.* **36** 8535–8547

The previously published versions of equations (2.5), (2.6), (2.10) and (2.11) are incomplete. The corrected equations are as follows:

$$\frac{\partial \bar{P}}{\partial \bar{r}} = \frac{\partial}{\partial z} \left[\bar{\mu}(r) \left(\frac{\partial \bar{u}}{\partial \bar{z}} - \frac{\partial \bar{w}}{\partial \bar{r}} \right) \right] + 2 \frac{\partial \bar{\mu}(\bar{r})}{\partial \bar{r}} \frac{\partial \bar{\mu}}{\partial \bar{r}} \quad (2.5)$$

$$\frac{\partial \bar{P}}{\partial \bar{z}} = -\frac{1}{\bar{r}} \frac{\partial}{\partial \bar{r}} \left[\bar{\mu}(r) \bar{r} \left(\frac{\partial \bar{u}}{\partial \bar{z}} - \frac{\partial \bar{w}}{\partial \bar{r}} \right) \right] + 2 \frac{\partial \bar{\mu}(\bar{r})}{\partial \bar{r}} \frac{\partial \bar{\mu}}{\partial \bar{z}} - \sigma \mu_e^2 H_0^2 \bar{w} \quad (2.6)$$

$$\frac{\partial P}{\partial r} = \delta^2 \mu(r) \frac{\partial}{\partial z} \left(\delta^2 \frac{\partial u}{\partial z} - \frac{\partial w}{\partial r} \right) + 2 \delta^2 \frac{\partial \mu(r)}{\partial r} \frac{\partial \mu}{\partial r} \quad (2.10)$$

$$\frac{\partial P}{\partial z} = \frac{1}{r} \frac{\partial}{\partial r} \left[\mu(r) r \left(\frac{\partial w}{\partial r} - \delta^2 \frac{\partial u}{\partial z} \right) \right] + 2 \delta^2 \frac{\partial \mu(r)}{\partial r} \frac{\partial \mu}{\partial z} - M^2 w \quad (2.11)$$

The terms that were omitted are negligible under our approximation ($\delta = 0$) and do not affect our calculations.

In equation (3.2), \bar{h} should read as \bar{h}^2 , as follows:

$$\hat{Q} = \bar{q} + \pi c \bar{h}^2 \quad (3.2)$$

In equation (4.26), α^2 should read as α , as follows:

$$w = \frac{(dP/dz - M^2)(I_0(Mr) - I_0(Mh))}{M^2 I_0(Mh)} + \alpha \left\{ \frac{dP/dz - M^2}{M^3 I_0(Mh)} \sum_{k=0}^{\infty} \frac{a_k(Mr)^{2k+3}}{2k+3} - \frac{[dP/dz - M^2] I_0(Mr)}{M^3 (I_0(Mh))^2} \sum_{k=0}^{\infty} \frac{a_k(Mh)^{2k+3}}{2k+3} \right\} \quad (4.26)$$

These are typographic errors and do not affect our calculations.

The text preceding equation (4.16) should read as: ‘Differentiating equation (4.9) with respect to r yields’