magnetochemistry

MDPI

Comment

Comment on Vishalakshi et al. MHD Hybrid Nanofluid Flow over a Stretching/Shrinking Sheet with Skin Friction: Effects of Radiation and Mass Transpiration. *Magnetochemistry* 2023, *9*, 118

Asterios Pantokratoras

School of Engineering, Democritus University of Thrace, 67100 Xanthi, Greece; apantokr@civil.duth.gr

1. First Error

In Figure 1, in [1], it is clearly shown that the x-axis is horizontal and the y-axis is vertical. The horizontal(u) momentum Equation (2) in [1] is as follows:

$$u\frac{\partial u}{\partial x}+v\frac{\partial u}{\partial y}=\nu_{hnf}\frac{\partial^2 u}{\partial y^2}+\vec{g}\beta(T-T_\infty)-\frac{\sigma_{hnf}B_0^2}{\rho_{hnf}}\sin^2(\tau)u \tag{1}$$

It is well known in Physics that gravity acts in the vertical direction. Therefore, Equation (1) is incorrect because the gravity term $\vec{g}\beta(T-T_\infty)$ in Equation (1) must be zero. The incorrect gravity term from Equation (1) has been transferred to dimensionless Equation (13) in [1] as $\frac{Ra_s}{\mathrm{Pr}}\theta$ and as $\frac{Ra_s}{\mathrm{Pr}}\lambda f_1$ in Equation (17) in [1], and these equations are incorrect. Two papers with the same error have been criticized in [2,3].

2. Second Error

Equation (20) in [1] is as follows:

$$f(Y)=V_C+d\left(\frac{1-e^{-\delta Y}}{\gamma}\right) \tag{2}$$

Equation (4c) in [1] is as follows:

$$T=T_\infty+\gamma(T_w-T_\infty)x \tag{3}$$

In a Physics equation, all terms must have the same units, and from Equation (3), it is found that the units of γ are $m^{-1}(length)^{-1}$. In Equation (2), the parameters $f(Y), V_C, d, Y, \delta$ are dimensionless, whereas γ is dimensional, and Equation (3) is incorrect.

Conflicts of Interest: The authors declare no conflicts of interest.

Citation: Pantokratoras, A. Comment on Vishalakshi et al. MHD Hybrid Nanofluid Flow over a Stretching/Shrinking Sheet with Skin Friction: Effects of Radiation and Mass Transpiration. *Magnetochemistry* 2023, *9*, 118. *Magnetochemistry* **2024**, *10*, 26. https://doi.org/10.3390/magnetochemistry10040026

Academic Editors: Carlos J. Gómez García and Kamil G. Gareev

Received: 8 January 2024
Accepted: 7 April 2024
Published: 11 April 2024

References

1. Vishalakshi, A.B.; Mahesh, R.; Mahabaleshwar, U.S.; Rao, A.K.; Pérez, L.M.; Laroze, D. MHD Hybrid Nanofluid Flow over a Stretching/Shrinking Sheet with Skin Friction: Effects of Radiation and Mass Transpiration. *Magnetochemistry* **2023**, *9*, 118. [CrossRef]
2. Pantokratoras, A. Discussion on "Higher Order Chemical Reaction and Radiation Effects on Magnetohydrodynamic Flow of a Maxwell Nanofluid with Cattaneo–Christov Heat Flux Model Over a Stretching Sheet in a Porous Medium" (Reddy Vinodkumar, M. and Lakshminarayana, P., 2022, ASME J. Fluids Eng., 144(4), p.041204). *ASME J. Fluids Eng.* **2023**, *145*, 125501.
3. Pantokratoras, A. Comment on the paper "Shape effect of nanosize particles in unsteady mixed convection flow of nanofluid over disk with entropy generation". *Proc. IMechE Part E J. Process Mech. Eng.* **2019**, *233*, 147–148. [CrossRef]