



SDI Review Form 1.6

Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	Ms_BJMCS_26359
Title of the Manuscript:	FORMULATION OF TIME DEPENDENT BLOCH NMR EQUATION FOR COMPUTATIONAL ANALYSES OF NANO PARTICLES IN POROUS MEDIA
Type of the Article	Original Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comments (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	1. The Introduction part is very short and it could be lengthened by adding the detailed discussion of each reference. 2. How is Eq. (1b) obtained from Eq. (1a)? Clarify. 3. Why have you not solved (1b) instead of (1a)? Explain logic behind it. 4. Parameters like $M_y, T_g, \beta, \gamma, \dots$ etc. are not primarily defined where they occur. 5. You have used Eq. (2b) in Eq. (1a) to get Eq. (4a), but my observation says that Eq. (2b) is used in Eq. (1a) to get Eq. (4a) as is obvious from Eqs. (4b) and (4c). It should be justified. 6. The authors should write the physical relevancy of their calculation in their paper. 7. Figures should be compared between three or four parameters, e.g., for $n=0, 1, 2, 3, 4$, etc. instead of giving separate presentation for these or else parameters. 8. In Eq. (5b), it is 1G or lG. If it is lG, then l stands for what not mentioned anywhere. It must be clarified and justified. 9. Everywhere, the Eqs. have been wrongly cited(e.g., right above (6) and (9), and below (9), you have cited(5), but have not mentioned anywhere in the manuscript). Citation must be rectified.	[1] The introduction has been increased by discussing the contribution of some of the references to the field. [2] The derivation of equations has been re-written so that readers can follow and the equations have been re-numbered. [3] Parameters like $M_y, T_g, B_1(t), \gamma$ are now defined. [4] The reason why the conditions were imposed have been justified. [5] The physical relevance of the various derivations and simulations have been added. [6] The figures have been restructured but still communicating the idea. [7] The discrepancies between 1G and lG have been fixed. It is 1 Gauss, unit of magnetic field. [8] Wrong citation of equations has been fixed. [9] $a_0 = 0$ repeated twice have been fixed. [10] Discrepancies in the representation of $\gamma B_1(t) = p_2 M_y(p)$ have been rectified. [11] 't' stand for time and 's' stand for seconds, the unit of time. [12] The technique used for solving equation () have been stated. [13] The grammatical constructions



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	10. Repeated expressions should be removed (e.g. $a_0 = 0$ repeated twice right below the Eq. (7)). 11. Again, Eq. (4b) right above (16) has been wrongly cited. Actually it is (4a) not (4b) as observed by me. 12. In Eq. (5b), you have taken $\gamma\beta_1(t) = P^2 M_y(p)$, but in Eq. (10) you have taken $p^2 M_y(p)$. Are p^2 and P^2 same? If yes, why you used two different notation having equal values? Explain. 13. You have used two parameters t and s, not fully described and only used (see right below (16)) in the manuscript. Which of these stand for time? And other for what. Clarify. 14. You have not mentioned the technique to solve Eqs. (6) and (10). 15. Right below the Fig. 15, Eq. (4b) wrongly cited. 16. Some of the phrases, like less and less significant, more and more exponential, etc. are irrelevant and insignificant. Refrain from using such phrases.	of the manuscript have been reviewed. [14] Reviewer should note that this work is more of application of mathematics to physical systems and physics of NMR, thus, the balance must be striked.
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Minor REVISION comments	Conclusion needs to be redrafted as many expressions have been used elsewhere in the manuscript also.	The conclusion has been re-drafted.
Optional/General comments	1. A discussion about further possible applications, for example in the case of an incompressible Reiner-Rivlin fluid, micropolar fluid, Nanofluid past a particle of arbitrary porous shape (e.g., with a Lipschitz boundary) using Bloch NMR equation, will be welcome. 2. There are some contributions in the field that should be included in the list of references and cited in the text, such as: B. R. Jaiswal, B. R. Gupta(2015), Stokes Flow over Composite Sphere : Liquid Core with Permeable Shell, JAFM, 8(3), 339-350 D. Fericean, T. Groşan, M. Kohr, W.L. Wendland (2013), Interface boundary value problems of Robin-transmission type for the Stokes and Brinkman systems on n-dimensional Lipschitz domains. Applications, Mathematical Methods in the Applied Sciences,1631-1648 The problem is that the topic considered has little relevance to fluid flow phenomena outside of a very narrow context and it has a little interesting in applied science. The paper has merit, but would of little interest for current research applied physics.	[1] Further possible applications of Bloch NMR equation to solve flow problems have been discussed. [2] The contribution of B. R. Jaiswal, B. R. Gupta(2015), Stokes Flow over Composite Sphere : Liquid Core with Permeable Shell, JAFM, 8(3), 339-350 , suggested by the reviewer have been considered in the limit of its applicability to this work, and have been cited accordingly.