Review Form 1.7

Journal Name:	**Asian Research Journal of Mathematics**
Manuscript Number:	**Ms_ARJOM_109912**
Title of the Manuscript:	**EFFECTS OF AN INCLINED CENTRED CONDUCTOR ON MHD NATURAL AND FORCED CONVECTION WITHIN A HEATED WAVY CHAMBER.**
Type of the Article	

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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(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. Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) **2. Is the title of the article suitable?** (If not please suggest an alternative title) **3. Is the abstract of the article comprehensive?** **4. Are subsections and structure of the manuscript appropriate?** **5. Do you think the manuscript is scientifically correct?** **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**		
Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**		
Optional/General comments	**The study investigates the effect of hall and ion slip on an inclined conductor on MHD natural and forced convection in a heated wavy chamber. The results obtained highlight several important factors and their impact on the flow rate and temperature distribution. The influence of the angle of inclination of the conductor, Rayleigh number, Hartmann number, and absorption coefficient on the fluid velocity profiles and temperature distribution are analyzed and discussed.** **Based on my assessment, I recommend the following minor revisions to further enhance the clarity and impact of your paper:** **1. Provide a brief introduction to clarify the relevance of MHD natural and forced convection in current engineering applications, particularly in the marine and aircraft sectors.** **3. Clarify the mathematical equations and numerical methods used in the study. Provide more details on how the governing momentum and energy equations were solved, and the specific numerical techniques implemented in the MATLAB software.** **4. Ensure that all equations, variables, and parameters are accurately defined and consistently presented throughout the manuscript. Consider including a nomenclature section to provide a comprehensive list and explanation of symbols used.** **5. Address any grammatical or typographical errors identified during proofreading.** **6. The introduction should be more elaborate to provide a comprehensive background on the relevance of MHD natural and forced convection. Consider discussing the importance of these phenomena in various engineering applications beyond the marine and aircraft departments, and how understanding them contributes to the development of efficient and**	

	environmentally friendly technologies. **8. Methodology:** **a) The description of the mathematical model employed in your study could benefit from additional clarity. Please consider including more details on the equations, boundary conditions, and assumptions used to simplify the problem. Provide explicit explanations of how the finite central scheme approximation was applied and how the resulting partial difference equations were solved using MATLAB.** **9. Results and Discussion:** **a) It would be helpful to present a summary of the main findings and their implications at the beginning of the results section. This will provide a clear roadmap for readers to follow and understand your conclusions.** **b) While the tables and figures do present the results effectively, consider incorporating more detailed discussions and interpretations of the data. How do the findings relate to the objectives and hypotheses of your study? What physical mechanisms can explain these observations? Are there any interesting trends or anomalies in the data that require further investigation?** **10. Conclusion:** **a) In the conclusion section, provide a concise summary of the key findings from your study. Emphasize their significance and how they contribute to the existing knowledge in the field of MHD natural and forced convection.** **b) Address any limitations or potential sources of error in your study. This will help the readers understand the boundaries within which your conclusions can be applied.** **11. In the section discussing the effect of the angle of inclination on the horizontal fluid velocity profile, you observe an increase in velocity with an increase in the angle. Can you provide further insights into the physical mechanisms driving this phenomenon? Are there any limitations or constraints that may affect the validity of this trend?** **12. The authors present the effect of Rayleigh number on the horizontal fluid velocity profile. While there is an increase in velocity with increasing Rayleigh number, do you observe any saturation or diminishing returns at higher Rayleigh numbers? If so, what is the underlying explanation for this behavior?** **13. Looking at the effect of Rayleigh number on the vertical fluid velocity profile, the authors note an increase in the strength of the vertical velocity profiles with increasing Rayleigh number. Can you provide a plausible explanation for this trend? Are there specific flow patterns or phenomena occurring that contribute to this behavior?** **14. The authors investigate the effect of the Hartmann number on the vertical fluid velocity profile. While higher Hartmann numbers generally result in increased velocity, do you observe any interesting variations, fluctuations, or critical points that deserve further analysis and discussion? Are there any findings that challenge the expected trends, which might indicate the existence of other influencing factors?** **15. Discussing the effect of the dimensionless absorption coefficient on temperature distribution, you observe a decrease in surface heat flow with increasing absorption coefficient. Could you delve into the physical reasons behind this trend? Are there any insights or correlations with previous studies in related fields that support your findings?** **16. In the study of the effect of hall and ion slip on an inclined conductor within MHD natural and forced convection, how do these two phenomena interact and affect the overall flow behavior? Can you identify any synergistic or antagonistic effects between hall and ion slip? How might these interactions impact the overall heat transfer and fluid flow patterns within the heated wavy chamber?** **17. Considering the influence of the angle of inclination of the conductor on buoyancy force and flow rate, can you provide a deeper understanding of the relationship between the angle and these two factors? Are there any potential optimization strategies for the inclination angle in order to maximize the flow rate while still maintaining acceptable heat transfer rates?**	

	18. While exploring the effect of the absorption coefficient on temperature distribution, what are the underlying mechanisms that cause a decrease in surface heat flow with increasing absorption coefficient? Are there any suggestions for practical applications, such as the development of efficient heat transfer systems or the design of materials with specific absorption properties? **19. Investigating the influence of Hartmann number on fluid velocity profiles, are there specific critical values or ranges of Hartmann numbers that exhibit notable changes in flow behavior? Can you speculate on the implications of these critical points and discuss how they might be leveraged in engineering applications that involve MHD natural and forced convection?** **20. Reflecting on the overall findings of your study, can you identify any potential limitations or uncertainties that may impact the generalizability of your results? How might these limitations be addressed in future research to provide a more comprehensive understanding of the complex dynamics involved in MHD natural and forced convection?** **21. Please provide the equations mentioned in the previous publications as references. Some of the coefficients require citations.** **22. Additionally, update the references to ensure comprehensive coverage. The existing references are insufficient and need to be more comprehensive, applicable, and effective. Please include some references related to applications in this research, such as marine engineering, telecommunications and satellites, space vehicles, aircrafts, quantum mechanics, fluid mechanics, and irrigation.** 23.A more comprehensive investigation and direct comparison of the proposed method with these existing approaches are necessary for a meaningful advancement in the field. Furthermore, the authors could significantly enhance the clarity and coherence of their work, enabling a more engaging presentation that effectively communicates the nuances of their research to the readers. Once these minor revisions are made, I believe the manuscript will be ready for publication. Again, I would like to emphasize that this work presents valuable insights and contributes to the advancement of knowledge in the field of MHD convection.	

PART 2:

	Reviewer's comment	**Author's comment** *(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)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

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