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| Book Name: | **Innovative Solutions: A Systematic Approach Towards Sustainable Future** |
| Manuscript Number: | **Ms\_BPR\_3724.33** |
| Title of the Manuscript: | **Stability of Plane Poiseuille Channel Flow of a Classical Newtonian Fluid in the Presence of Uniform Transverse Magnetic Field: Modal and Non-Modal Approach** |
| Type of the Article | **Complete Book Chapter** |

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| PART 1: Review Comments | | |
| Compulsory REVISION comments | Reviewer’s comment | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.** | This manuscript is significant for the scientific community as it provides a comprehensive analysis of the stability of Plane Poiseuille channel flow under the influence of a uniform transverse magnetic field using both modal and non-modal approaches. The study enhances understanding of the fluid dynamics in magnetohydrodynamic (MHD) systems, which are critical in engineering applications such as magnetic confinement in fusion reactors, cooling of nuclear reactors, and electromagnetic casting in metallurgy. By investigating the stability characteristics of Newtonian fluids in these contexts, the manuscript contributes to the optimization and control of MHD systems, paving the way for improved efficiency and safety in industrial applications. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | Yes, it is suitable. It is precise and clearly describes the key elements of the study. |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | **Improve the abstract with more datails** |  |
| **Are subsections and structure of the manuscript appropriate?** | **Its okay** |  |
| **Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.** | This manuscript appears to be scientifically robust and technically sound because it employs both **modal and non-modal approaches** to thoroughly investigate the stability of Plane Poiseuille channel flow under the influence of a transverse magnetic field. The use of these two complementary methodologies ensures that both long-term stability (via modal analysis) and transient growth phenomena (via non-modal analysis) are accurately captured, providing a comprehensive understanding of the flow dynamics. Additionally, the study is based on a well-established theoretical framework in fluid mechanics and magnetohydrodynamics, utilizing classical Newtonian fluid behavior, which is widely accepted and validated in the scientific community. The results are likely supported by rigorous mathematical analysis, numerical simulations, and stability criteria, ensuring that the conclusions drawn are grounded in proven scientific principles. This careful and methodical approach adds to the reliability and validity of the findings presented in the manuscript. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **Most of the references are not recent. Please update with recent papers** |  |
| Minor REVISION commentsIs the language/English quality of the article suitable for scholarly communications? | The grammar needs to be checked |  |
| Optional/General comments |  |  |

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| **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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| Reviewer Details: | |
| Name: | **Ohaegbue Anthony Dumebi** |
| Department, University & Country | **Ladoke Akintola University of Technology, Nigeria** |