Review Form2

Book Name:	Current Approaches in Engineering Research and Technology
Manuscript Number:	**Ms_BPR_1865**
Title of the Manuscript:	**The study of the aquaplaning phenomenon for the wheel of a vehicle moving on a wet road**
Type of the Article	**Book chapter**

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 few sentences regarding the importance this manuscript for scientific community. Why do you like (or dislike) this manuscript? Minimum 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 aquaplaning phenomenon, a critical aspect of vehicle safety. The detailed exploration of the fluid dynamics involved and the mathematical modeling of the pressure distribution under a tire enhances our understanding of how and when aquaplaning occurs. This knowledge is essential for designing safer tires and improving road safety measures, potentially reducing the number of accidents caused by wet road conditions. I appreciate the manuscript for its thorough approach and the practical applications of its findings in improving tire design and vehicle safety systems. However, the manuscript could be more impactful if it included recent advancements in simulation technologies and more experimental validation to support the theoretical models presented. Overall, it is a valuable contribution to automotive safety research.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The title of the manuscript, "The Study of the Aquaplaning Phenomenon for the Wheel of a Vehicle Moving on a Wet Road," is suitable as it clearly describes the focus of the research. However, it can be made more concise and impactful. An alternative title could be: "Analysis of Aquaplaning in Vehicle Tires on Wet Roads" This title succinctly conveys the core subject of the manuscript and emphasizes both the analysis and the specific conditions under which the phenomenon is studied.	

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Is the abstract of the article comprehensive? Do you suggest addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract of the article is fairly comprehensive but can be improved for clarity and completeness. Here are a few suggestions for enhancement: 1. Explicitly state the primary objective of the study, emphasizing the significance of understanding aquaplaning for vehicle safety. 2. Provide a brief overview of the methods used, including both the theoretical analysis and any experimental or simulation techniques. 3. Highlight the key findings or conclusions drawn from the study, such as the critical speed for aquaplaning and the impact of various factors on the phenomenon. 4. Mention the practical implications of the research for tire design and road safety measures. Hydroplaning is a phenomenon that occurs when a layer of water builds up between the tires of a vehicle and the road surface, leading to a loss of traction and preventing the vehicle from responding to control inputs such as steering, braking, or accelerating. This can lead to serious road accidents, making it crucial to study tire-pavement interactions to devise optimal methods for preventing hydroplaning. This paper presents a study of the expulsion process of viscous fluid from under a solid plane using the general differential equation of pressure in the viscous fluid layer. The analysis focuses on the aquaplaning process of an automobile's wheel rolling on a wet path. The study also considers a tire with a tread composed of insulated profile blocks of circular shape. Key findings include the identification of critical speeds for aquaplaning and the effects of tire tread design and water depth. The results have significant implications for improving tire designs and enhancing vehicle safety on wet roads. By incorporating these points, the abstract will provide a more comprehensive and informative summary of the study.	
Are subsections and structure of the manuscript appropriate?	The subsections and structure of the manuscript are generally appropriate	
Please write few sentences regarding the scientific correctness of this manuscript. Why do think that this manuscript is scientifically robust and technically sound? Minimum 3-4 sentences may be required for this part.	This manuscript is scientifically robust and technically sound due to its detailed and methodical approach to studying the aquaplaning phenomenon. The use of general differential equations to model the pressure in the viscous fluid layer demonstrates a solid theoretical foundation, ensuring that the analysis is grounded in established fluid dynamics principles. Additionally, the manuscripts inclusion of both theoretical and practical implications highlights its relevance and applicability in real-world scenarios, such as improving tire design and vehicle safety measures. The thoroughness of the calculations and the logical flow of the argumentation further attest to the manuscript's scientific rigor and technical accuracy.	
Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form. **-**	The manuscript's references are foundational and cover key aspects of fluid mechanics and automotive engineering relevant to the study of aquaplaning. However, the references predominantly feature older publications, and integrating more recent studies could enhance the manuscript's relevance and impact. Suggestions for Additional References 1. Recent Advances in Numerical Simulations: - Aksenov, A., Dyadkin, A., &Gudzovsky, A. (2017). "Numerical Simulation of Car Tire Aquaplaning." This study offers insights into modern computational fluid dynamics (CFD) methods and their application in simulating aquaplaning phenomena, which could strengthen the technical robustness of the manuscript. 2. Practical Insights on Aquaplaning: - Pirelli. (2023). "What is aquaplaning and how to avoid it?" This article provides practical advice on how driving habits and tire maintenance can influence the risk of aquaplaning. Incorporating such practical insights can bridge the gap between theoretical analysis and real-world applications. 3. Recent Scientific Studies: - Recent academic articles on related topics, such as those available on platforms like Nature and Springer, can provide updated methodologies, findings, and discussions that are crucial for a contemporary understanding of aquaplaning. This manuscript is a valuable contribution to the scientific community as it delves into the critical issue of aquaplaning, which is vital for enhancing vehicle safety. The detailed mathematical modeling and analysis provide a strong theoretical foundation that can aid in the design of better tires and road safety measures. The practical implications discussed can lead	

	to real-world applications that significantly reduce the risk of accidents on wet roads. The manuscript's combination of theoretical rigor and practical relevance makes it a robust and technically sound piece of research. By incorporating more recent studies and practical insights, the manuscript can further enhance its impact and utility for both researchers and practitioners in the field of automotive safety and fluid mechanics.	
Minor REVISION comments **Is language/English quality of the article suitable for scholarly communications?**	The language and English quality of the article are generally suitable for scholarly communications. The manuscript uses appropriate scientific terminology and the structure is logically organized. However, there are a few areas where the language can be improved for clarity and readability. Here are some suggestions: 1. Ensure that terms are used consistently throughout the manuscript. For example, stick to either "aquaplaning" or "hydroplaning" to avoid confusion. 2. Review sentences for grammatical accuracy and improve sentence structure where needed. For instance, breaking down complex sentences into shorter, clearer ones can enhance readability. 3. Clearly define technical terms and avoid jargon where possible. This ensures that the manuscript is accessible to a broader audience, including those who may not be specialists in the field. 4. Ensure smooth transitions between sections and maintain a coherent flow of ideas. Each section should naturally lead to the next, building a cohesive argument. Overall, with some minor revisions, the manuscript's language quality can be elevated to meet the standards of scholarly communications effectively.	
Optional/Generalcomments	The manuscript titled "The Study of the Aquaplaning Phenomenon for the Wheel of a Vehicle Moving on a Wet Road" is a significant contribution to the field of vehicle safety and fluid dynamics. The detailed mathematical modeling and analysis provide a robust theoretical foundation that enhances our understanding of the aquaplaning phenomenon. Here are a few additional comments and suggestions for improvement: 1. Including more diagrams and flowcharts can help illustrate complex concepts and processes. Visual aids can make the content more accessible and easier to understand for readers. 2. While the theoretical analysis is comprehensive, incorporating experimental data or case studies could strengthen the manuscript. Real-world validation of the theoretical models would enhance the credibility and applicability of the findings. 3. As mentioned earlier, integrating more recent studies and references can provide a contemporary perspective and show how the current research builds on or differs from recent advancements in the field. 4. Emphasize the practical implications of the research more clearly. Discuss how the findings can influence tire design, road safety measures, and driver education. This can help bridge the gap between theoretical research and real-world applications. 5. Continue to refine the language and ensure that the manuscript is free from grammatical errors. Clear and concise writing will make the content more accessible to a broader audience. 6. Suggest potential areas for future research. This could include more detailed studies on different tire designs, varying road conditions, and the impact of environmental factors on aquaplaning. Overall, the manuscript is well-structured and technically sound. With minor revisions and the incorporation of the suggestions above, it can become a highly valuable resource for researchers and practitioners in the field of automotive safety and fluid mechanics.	

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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