Review Form 2

Book Name:	**Current Research Progress in Physical Science**
Manuscript Number:	**Ms_BPR_3694**
Title of the Manuscript:	**Constants of motion and quantum non-relativistic motion of a charged particle on a flat surface with transversal magnetic field**
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 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 addresses a fundamental problem in quantum mechanics by exploring the constants of motion and quantum dynamics of a charged particle in the presence of a transversal magnetic field. Such studies are crucial for understanding the interplay between magnetic fields and quantum systems, with potential implications for areas like quantum transport, topological materials, and magnetic confinement. The work combines rigorous mathematical analysis with physical insights, making it a valuable resource for researchers in quantum mechanics and condensed matter physics. I appreciate the manuscript's clarity and its potential to stimulate further theoretical and experimental investigations in this field.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	**YES**	
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.	**Needs improvement/ addition concept**	
Are subsections and structure of the manuscript appropriate?	**It needs more subsection depending on the pages of book chapter allowed.**	
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.	The manuscript appears to be scientifically robust, as it presents a rigorous mathematical framework grounded in established principles of quantum mechanics and electrodynamics. The derivations and analysis are consistent with the theoretical foundations of the motion of charged particles in magnetic fields, ensuring technical accuracy. The authors provide detailed explanations of the constants of motion, demonstrating a deep understanding of their significance in quantum systems. Additionally, the connections drawn between the mathematical results and their physical implications enhance the scientific credibility of the work. This comprehensive approach underscores the manuscript's technical soundness.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	**Comments given to add more recent references**	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	**Good**	

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Optional/General comments	The manuscript provides a thorough and insightful exploration of the quantum motion of a charged particle on a flat surface under a transversal magnetic field, emphasizing the role of constants of motion. It is well-written and structured, making complex concepts accessible while maintaining scientific rigor. The topic is highly relevant to foundational studies in quantum mechanics and its applications in advanced materials and quantum technologies. However, including more physical examples or potential experimental applications could enhance the manuscript's impact. Overall, the work makes a valuable contribution to the field, offering theoretical insights that can inspire further research. **Specific Comments** 1. **Clarity of Concepts**: The explanation of the role of the transversal magnetic field in modifying the motion of the charged particle is clear, but some sections (e.g., flat surface with transversal magnetic field) might benefit from additional diagrams or physical examples. 2. **Structure and Flow**: The chapter is well-organized, moving logically from theoretical concepts to specific applications. However, a brief summary at the end would help reinforce the key takeaways. 3. **Mathematical Framework**: While the mathematical treatment is detailed, providing a step-by-step breakdown of the derivations might make the content more accessible to graduate-level readers. 4. **Quantum Interpretations**: The quantum mechanical perspective is intriguing, but the implications of the findings could be elaborated further, especially in terms of observable phenomena or experimental validation. 5. **Figures and Illustrations**: The inclusion of graphical representations, such as trajectories, wavefunction behaviors, or energy levels, could enhance the reader's understanding. 6. **References and Literature**: The chapter cites relevant foundational works but might benefit from the inclusion of recent studies in quantum transport or topological materials to connect the findings with contemporary research. **Constructive Suggestions** 1. Consider including a discussion on how these constants of motion relate to conserved quantities in more complex geometries or relativistic contexts. 2. Providing a brief comparison with analogous systems (e.g., Landau levels or charged particle motion in curved spaces) would highlight the uniqueness of the flat-surface case. 3. Adding a section on potential experimental realizations or setups to test the theoretical predictions could increase the practical relevance of the work.	

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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)*	

Reviewer Details:

Name:	**Yonas Etafa Tasisa**
Department, University & Country	**Wollega University, Ethiopia**