

[ReviewForm2](#)

BookName:	CurrentResearchProgressinPhysicalScience
ManuscriptNumber:	Ms_BPR_2566
TitleoftheManuscript:	Rabioscillations,entanglementandteleportationintheanti-Jaynes-Cummingsmodel
Typeof theArticle	Bookchapter

PART1:ReviewComments

<u>Compulsory</u> REVISIONcomments	Reviewer'scomment	Author's Feedback (Please correct the manuscript and highlight that partinthemanuscript.It ismandatory thatauthorsshould writehis/herfeedback here)
Please write a few sentences regarding the importanceof this manuscript for the scientific community. Why doyou like (or dislike) this manuscript? A minimum of 3-4sentencesmay berequiredforthis part.	This manuscript is a valuable contribution to the scientific community as it provides an in-depth analysis ofquantum entanglement, Rabi oscillations, and teleportation within the anti-Jaynes-Cummings (AJC) model. Thenovelty of exploring the less-studied AJC interaction mechanism in contrast to the widely researched Jaynes-Cummings(JC)modeloffersnewinsightsintoquantuminformationprocessingandquantumoptics.Themanuscript also demonstrates the potential of using the AJC model for high-fidelity quantum teleportation, whichissignificantforadvancementsinquantumcommunication.Iappreciatetherigorandclarityoftheresults,particularlythedemonstrationofmaximalteleportationfidelity,whichstrengthensthepaper'sscientificimpact.	
Isthetitleofthearticlesuitable? (Ifnotpleasesuggestanalternativetitle)	Thetitleissuitableasitreflectsthecorefocusofthemanuscript:Rabioscillations,entanglement,andteleportation within the anti-Jaynes-Cummings model. It accurately summarizes the key concepts explored in thepaper, such as quantum interactions, qubit states, and teleportation fidelity. However, to emphasize the practicalapplication of the results, a possible alternative could be:"Quantum Information Processing via Rabi OscillationsandTeleportation in theAnti-Jaynes-CummingsModel."	
Is the abstract of the article comprehensive? Do yousuggest the addition (or deletion) of some points in thissection?Pleasewriteyoursuggestionshere.	The abstract is comprehensive and provides a clear overview of the manuscript's main contributions, includingthe generation of maximally entangled qubit states and the application of these states in teleportation protocols.However, it could be improved by explicitly mentioning the potential implications for quantum informationprocessing and communication. Additionally, a brief reference to the comparison with the JC model could furtherhighlightthe noveltyof the AJC interaction.	
Are subsections and structure of the manuscriptappropriate?	The subsections and overall structure of the manuscript are appropriate. Each section builds logically from thetheoretical foundation to the discussion of Rabi oscillations, entanglement, and teleportation. The inclusion ofdetailedmathematicalmodelsandclearseparationofdifferentanalysisaspects,suchasentanglementevolutionandteleportationfidelity,contributeothereadabilityand coherenceofthemanuscript.	
Please write a few sentences regarding the scientificcorrectness of this manuscript. Why do you think thatthis manuscript is scientifically robust and technicallysound? A minimum of 3-4 sentences may be requiredforthispart.	The manuscript is scientifically robust and technically sound. The authors have provided thorough mathematicalderivationsandbackedtheirtheoreticalpredictionswithwell-reasonedarguments.Theanalysisoftheentanglement properties, especially the use of von Neumann entropy, and the detailed discussion on teleportationfidelity offer convincing evidence of the AJC model's capabilities in quantum information tasks. The scientificrigorisfurther supportedbyrelevantcomparisonswiththeJCmodel,demonstratingtheuniquefeature softheAJCmodel.	
Arethereferencesufficientandrecent?Ifyouhavesuggestions of additional references, please mentionthem inthereview form.	ThereferencesaresufficientandcoverbothfoundationalworksinqantummechanicsandrecentstudiesrelevanttotheAJCmodelandquantumteleportation.However,addingmorerecentreferencesonpracticalapplications ofquantumteleportationorquantuminformationprocessing,particularlyinexperimentalcontexts,couldstrengthen themanuscript.	
<u>Minor</u> REVISIONcomments Is the language/English quality of the article suitableforscholarly communications?	The languageisgenerallysuitableforscholarlycommunication,butminorgrammaticalrefinementscouldimprove clarity.	
<u>Optional/General</u> comments		

PART 2:

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

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