|  |  |
| --- | --- |
| Book Name: | **Current Research Progress in Physical Science** |
| Manuscript Number: | **Ms\_BPR\_4477** |
| Title of the Manuscript: | **Anisotropic Generalization of the ΛCDM Universe Model with Application to the Hubble Tension** |

**PART 1: Comments**

|  |  |  |
| --- | --- | --- |
|  | **Reviewer’s comment**  **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **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. A minimum of 3-4 sentences may be required for this part.** | This manuscript discussed the cosmological implications of an anisotropic solution to the Einstein equation. The author also investigates whether the new solution and the corresponding cosmological model can resolve the Hubble tension, which is a long standing problem in cosmology. The conclusion seems to be that cosmic anisotropy, even in a general Bianchi type I framework, cannot resolve the Hubble tension. |  |
| **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.** | The abstract of the article is comprehensive but a little too verbose. I suggest cutting it shorter.  Also, the author claimed to have “deduce (d) an exact and analytic Bianchi type I solution of Einstein’s field equations…..” But after reading section 2.1, it seems most of the calculations have been done in reference 8 and reference 9 and the author is simply adding more details here. So I don’t think it is fair to claim that the authors themselves deduced the solution. I think they are simply using pre-existing solutions to analyze its cosmological implications. Similar statements indicating novelty of the solution also exist in the introduction. They should be removed as well. |  |
| **Is the manuscript scientifically, correct? Please write here.** | I don’t find major scientific mistakes in the manuscript. I think it is correct. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.**  **-** | Yes, the references are very recent and sufficient. |  |
| **Is the language/English quality of the article suitable for scholarly communications?** | Mostly. But there are a few places where one could make some changes. For example, when citing Herzberg and Loeb  on page 16 below equation 107, instead of directly quoting what they say, it would be better to just concisely summarize their conclusion. |  |
| **Optional/General** comments | * Paragraph 3 in section 2 seemed a bit out of place: I think section 2 is supposed to be a background review of Bianchi type universe models but whether or not they resolve the Hubble tension is not part of the background but the focus of the current manuscript. So maybe it is better to move paragraph 3 either to the introduction part or to the conclusion. * There are many pages that are dense in equations. Even though the abundance of the technical details demonstrate the author’s expertise, I do think they disrupt the flow of the article. I think it would be a good idea to just highlight the main result from a chunk of calculation and move all the calculations details to the appendix. * There are some formatting problems in eqn (99) * Missing punctuations at the end of eqn (7),(8),(9),(10),(11),(14),(18),(24),(27),(28),(41),(63),(65),(67),(72),(81),(84),(94), (103),(111),(117),(137),(A1)-(A15). |  |

|  |  |  |
| --- | --- | --- |
| **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: | **Yixin Xu** |
| Department, University & Country | **California Institute of Technology, China** |