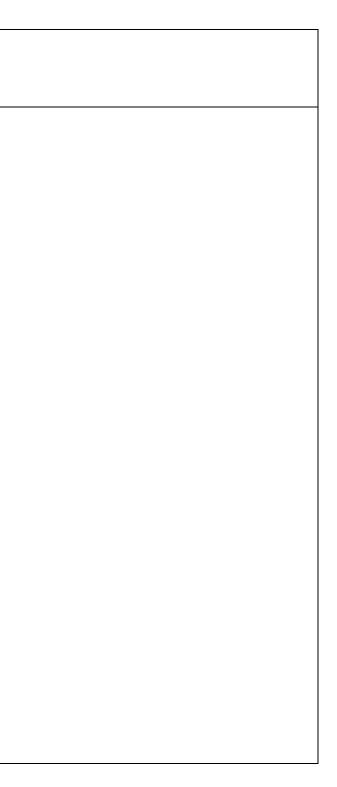|	
Book Name:	Current Research Progress in Physical Science
Manuscript Number:	**Ms_BPR_4037**
Title of the Manuscript:	**Stochastic quantum inflation based on a single canonical scalar field: The linear self-interaction potential case**
Type of the Article	**Book chapter**

PART 1: 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. A minimum of 3-4 sentences may be required for this part.		
Is the title of the article suitable? **(If not please suggest an alternative title)**		
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.		
Is the manuscript scientifically, correct? Please write here.		
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**		

Is the language/English quality of the article suitable for scholarly communications?		
Optional/Generalcomments	**Referee Report** **Title: Stochastic quantum inflation based on a single canonical scalar field: The linear self-interaction potential case** Starobinsky's formalism is a framework in theoretical cosmology and quantum field theory, particularly in the context of inflationary models of the early universe. It is named after Alexei Starobinsky, a prominent physicist who developed key ideas and techniques in this area. **Starobinsky Inflation (R² Inflation)** one of the earliest and most successful models of cosmic inflation. Based on modifications of Einstein's General Relativity, where the Einstein-Hilbert action is extended with a term proportional to the square of the Ricci scalar R:	

$$S = \frac{1}{2} \int d^4x \sqrt{-g} \left[M_{\mathrm{Pl}}^2 R + \frac{R^2}{6M^2} \right],$$

where M_{Pl} is the Planck mass, and M is a mass scale. This model leads to a graceful exit from inflation and is compatible with current observational constraints from the Cosmic Microwave Background (CMB). Starobinsky's formalism has been extended to include other modifications of gravity (e.g., f(R) theories) and interactions with additional fields. The manuscript presents the main developments that apply Starobinsky's formalism to the case of a massless minimally coupled scalar field with linear self-interaction potential. The authors solve the corresponding Fokker-Planck equation exactly and obtain analytical expressions for the stochastic expectation values. The paper is technically well organized. This paper presents interesting content.

My suggestion: In the section where the inconsistencies of the Bing-Bang theory is mentioned, references to recent studies on the subject should be given. For example, the following studies could be cited:

1. Uzan, Jean-Philippe. "The big-bang theory: construction, evolution and status." *The Universe: Poincaré Seminar 2015*. Springer International Publishing, 2021.

2. Rhook, Graeme, and Mark Zangari. "Should we believe in the big bang?: a critique of the integrity of modern cosmology." *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*. Vol. 1994. No. 1. Cambridge University Press, 1994.

3. Mamedov, Bahtiyar A. "The nuclear-seed theory of the origin and formation of the universe." ResearchGate, DOI: 10.13140/RG.2.2.28746.54721.

I recommend this work for publication as a book section.

	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:	**Bahtiyar A. Mamedov**
Department, University & Country	**Gaziosmanpasa University, Turkey**