Dear Editor-in-Chief Lily Maysari Angraini,

Thank you very much for your assistance in reviewing our manuscript. We take the comments from the reviewer seriously and respond to them carefully. Below we clarify the issues raised by the reviewers and modify our paper accordingly. We hope that the revised paper can be reconsidered in IPR. Thank you very much.

Best regards,

Alex on behalf of all authors

REVIEWER COMENT(S):

Reviewer: 1

COMMENTS TO THE AUTHOR(S)

► Alex et al, investigate in "Peturbation method in Quantum system" the excitations of atomic arrays coupled to a nanophotonic waveguide. The research focuses on the dynamics of two dissimilar arrays with different interparticle spacings. It explores how these differences influence steady-state phases within the weak laser field limit..

The paper is well written and covers the relevant literature. The quality of the illustrations and Figures are excellent. As the research group has a strong experience in the identification of different steady-state phases in such nanophotonic platforms, the discussion is solid and well supported by numerical and analytical results.

Our response: We thank for the reviewer's appreciation of the work.

► However, I have concerns regarding the paper's incremental nature over previous studies and the problems in realizing their ideas in the experimental setup under consideration.

In the current form of the paper, I cannot recommend publication in IPR, unless the authors can more convincingly argue how their results offer new prospective with respect to their previous work, and explain better how their ideas link to experimental platforms.

In the following, I detail these general concerns, together with more specific points:

Our response: We thank for the reviewer's comments. Rather than an incremental study, our work here extends the previous findings in a …….. Below we clarify the issues raised by the referee and make corresponding changes in the updated paper.

► 1) Experimental implementation: In the current form, the paper shows an imbalance between presenting a very specific experimental platform …….

Our response: We thank for the reviewer's suggestions. We agree that a prerequisite of

experimental perspective for ……...

► 2) (Other reviewer comment and questions)…

Our response: (Other author responses……..)

Reviewer: 2

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Summary of changes:

(1) In Sec. II, we add a discussion on experimental demonstration of the theoretical model.
(2) On page 2, we address the issue of nonguided or free-space decay rates following Eq. (4).
(3) ……..