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| Jan. 30, 2018 | **Prineha Narang** *Assistant Professor of Computational Materials Science*  304 Pierce Hall  29 Oxford St., Cambridge MA 02138  Phone: (617) 496-4710  Email: prineha@seas.harvard.edu |

Prof. Stojan Rebić

Editor, Physical Review Letters.

Dear Dr. Rebić,

Thank you very much for your interest in our work. We hereby re-submit our revised manuscript. As you will see in our response to the manuscript, we have addressed fully all concerns and queries of the referees.

Referee 1 had one major concern, which was that it was unclear to them what advantages our novel framework had over long-standing approaches such as the dressed-state approach. We have now emphasized in detail, both in the revised text and our response to the referees, that our approach is particularly suitable where the dressed-state approach is not (ultra- and deep-strong coupling regimes, where the rotating wave approximation breaks down). We have also emphasized that our framework makes explicit and experimentally testable predictions about spectra and correlated observables, which a dressed-state approach would not accurately capture. Therefore, we have addressed all of Referee 1’s concerns, and they should now agree that our manuscript meets the stringent standards of interest, innovation, and impact upheld by PRL.

Referee 2 was overall quite positive in their view of our manuscript, stating that they “believe the manuscript can be of interest to a broad audience, both at a theoretical and experimental level”, further stating that “the proposed method can help to shed light on how fundamental phenomena such as the Lamb shift is modified in the ultra-strong coupling regime.” They had some suggestions about the presentation of the manuscript that we have fully implemented. Moreover, Referee 2 asked for information about the accuracy of our novel framework in predicting correlated observables. We have provided this information in the manuscript, showing that our method can accurately predict correlated observables in the ultra-strong coupling regime, thus *even further* bolstering the claims of our manuscript.

To summarize, we have fully addressed all of the reviewers’ comments, and hope that our timely and impactful response will now be accepted for publication. Thank you once again for your interest in our work. We look forward to hearing your response.

Yours Sincerely,



*Professor Prineha Narang.*

Please feel free to contact me at prineha@seas.harvard.edu with any additional questions.