The authors considered a quantum quench of a scalar field on dS space, and investigated the correlation functions of the scalar field. Although the results are new and interesting, I found several problems on the manuscript and I would like to request the authors to make revisions.

1. The authors studied the sudden quench (3.3) in the model (3.1). But the motivation is unclear. Is this just a mathematical model? Is there any cosmological reason to study the quench (3.3)? If so, what is χ and ϕ, and how does the time dependent $m(\tau)$ (or $c(\tau)$) arise? (In condensed matter systems, experimentalists might be able to control the mass or the coupling, but, in cosmology, who can do it?)

2. Related to the first problem, the importance of the Caldeira-Leggett model (2.1) is unclear for me. The authors considered the sudden quench (3.3), and it means that certain dynamics involving other fields must causes it. In my opinion, it is better to simply start from the model (3.1) from the beginning rather than start from the Caldeira-Leggett model (2.1). Whether starting from (3.1) or starting from (2.1), both must assume the unknown assumption (3.3), and starting from (3.1) is better, since it is simpler.

3. This manuscript is not well explained and is difficult to understand in several places. I could not understand the following arguments:

   (a) After (2.8), the authors employed the Euclidean action. However, several equations seem Lorentzian. For example $\sqrt{-g}$ and the action in (2.14). (2.15) also looks Lorentzian but it is unclear whether the authors really studied Lorentzian dS or it is a typo.

   (b) Around (2.15), the definition of H, $H(\tau)$, H' and their related quantities such as τ_T are unclear.

   (c) In (3.11), $\mathcal{H}$ and $\mathcal{H}'$ are not defined.

   (d) In section 3, the authors studied various vacua and states such as Bunch-Davies vacuum. Their definitions are needed to make the manuscript self-contained. Relatedly in (3.58) and (3.59), Dirichlet and Neumann boundary states are not defined.

4. I found several typos:

   (a) On page 21, "we have have".

   (b) In (3.221), (3.222) and (3.223), τ_1 in the second equation.

   (c) On page 47, there are several typos on the parentheses.