# Responses to Referee Report (Reviewer #1)

Dear editor and referees of the SIAM Journal on Scientific Computing,

We would like to thank you for the time and help in handling and carefully reading our submission and providing encouraging and constructive comments. We have revised our paper accordingly and improved its context in several courses.

Major change includes an extra simulation on

We have also carefully proofread the manuscript, polished its writing and corrected the typos and grammatical errors. Here are the comments from reviewer #1 in bold followed by our responses.

1. **How do you deal with an interface of really any shape, for example a spherical cavity?**
   We have added in the introduction section how interfaces can be constructed in the general setting. We divide the computational domain into subdomains such that each subdomain has four sides in 2D and six faces in 3D. We then map each curved subdomain into a reference doamin.

2. **At the interface between two different grids (but with identical physical properties), are parasitic reflections zero? It is likely that parasitic modes are generated; see for example the work of Collino-Fouquet-Joly ("A conservative space-time mesh refinement method for the 1-D wave equation") or Rodriguez-Joly. The maps in figure 6 are not convincing: cuts with and without interface would be much better suited**
   For Figure 6, the reference solutions are actually obtained from a uniform Cartesian grid without using any interface. This information has been added to the caption of Figure 6 and 7. From the picutures, we observe small reflections when mesh grids are coarse. But when we refine the mesh, we observe that the reflections become smaller. Because the method converges with fourth order, the amplitude of reflections decreases fast with mesh refinement.

Again, we appreciate you all for the time in handling and scrutinizing our manuscript, and thanks for considering our submission to this journal.

Sincerely,

All authors