

We thank the community commenter for the detailed and helpful suggestions regarding the specific ADDA formulation and numerical accuracy of the ADDA simulations. We have expanded the documentation of the ADDA configuration and computational requirements, quantified errors associated with discretization and orientation averaging, and added supporting input generation and execution materials to the Zenodo repository. Our response to each comment is provided below in blue text, while reviewer comments are reproduced in black.

---

### Specific Comments:

1. The authors have performed a lot of DDA simulations and carefully described the training and validation starting from the DDA dataset (available at Zenodo). However, I couldn't find a description of the ADDA parameters used for simulations. It would be great to specify them for the overall reproducibility, including the ADDA version, DDA formulation, and discretization. Mentioning that some parameters are set to default values will also be fine.

We have added Appendix A to the revised manuscript, which outlines the discretization and specifies the version of ADDA that was used.

2. Putting all raw DDA output online would probably be an overkill, but the authors may consider sharing the scripts, which perform these runs (to build a dataset). They will necessarily contain all the command line options for ADDA. Total or per run computational requirements of the DDA can also be interesting for readers.

We have added an overview of timing requirements for our simulations in Appendix A and specified on lines 465-467 of the revised manuscript that the hybrid BNN speeds up computation time by 2-6 orders of magnitude. We have also added a tutorial covering input generation and ADDA scripting to the Zenodo repository.

3. Related question is that of the uncertainty of the DDA simulations (expected errors). Is there any estimate on that, at least for a few representative cases? It can be obtained, e.g., by several steps of discretization refinement for the same problem. I suspect, that the corresponding DDA errors are small enough to not influence any conclusions or further steps in the manuscript. Still, it would be great to quantify them. The latter seems especially natural, since the authors already perform an advanced error analysis, separating aleatoric and epistemic uncertainties. The DDA uncertainty probably fall into aleatoric class, but I am not sure if it needs any special consideration.

The ADDA manual recommends maintaining a dipole length ( $d$ ) small enough such that the number of dipoles per wavelength ( $\lambda/d$ ) is greater than 10, with expected errors within a few percent. We use a dipole length of  $0.0033 \mu m$ , which leads to a minimum  $\lambda/d$  value of 90 in our simulations. We therefore expect errors due to discretization to be very small.

We also average the optical properties of each particle over 150 random orientations and train the hybrid BNN on the orientation-averaged optical properties. We compared the 150-orientation optical properties with 300-orientation optical properties of 40 randomly selected particles to quantify expected errors from orientation-averaging. We found that using 150 orientations in averaging led to absolute errors of 0.1% or less for all optical properties when compared to average values for 300 orientations (i.e. 0.1% improvement for double computational cost). We therefore expect negligible errors to be introduced due to discretization and orientation-averaging in ADDA simulations. We have added Appendix A to the revised manuscript discussing these details.

4. Finally, I have a minor stylistic note concerning the name of the ADDA code. The official guideline is not to deabbreviate it - see <https://github.com/adda-team/adda/wiki/FAQ#what-is-the-official-name-of-the-code-what-does-a-stands-for>. In other words, the standard naming is just ADDA. Similar aspects were recently discussed in another GMD paper - <https://doi.org/10.5194/gmd-19-887-2026>.

We have removed all instances of de-abbreviation in the revised text and ensured that all references to simulations use the proper notation “ADDA”.