

## ***Interactive comment on “A shape model of internally mixed soot particles derived from artificial surface tension” by H. Ishimoto et al.***

### **Anonymous Referee #2**

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This manuscript presents optical modeling of internally mixed soot particles, a subject that is of interest for atmospheric remote sensing. The modeling approach and computational techniques are sound and reasonable. The results are representative and semi-extensive, and thus should be useful in remote sensing analysis and relevant optical interpretation. I suggest the following revisions for the authors' consideration:

- 1) Is Eq. (1) necessary? Remove it, if it is unnecessary.
- 2) The discussion on the efficiency of computational methods only focuses on the shape aspect. Actually, the refractive index has large impact on the efficiency comparison between FDTD and DDA.
- 3) It might be better to have a table of the refractive indices at the 10 wavelengths.

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- 4) A reference is required for the Maxwell-Garnett mixing rule.
- 5) The results are presented for single particles. It is unclear to obtain the size-averaged results from the simulated results. More discussion is required on the comparison between simulations and observations/measurements.
- 6) In summary, it might be better to summarize the new knowledge gained from the present modeling study.

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