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Interactive comment on "Influence of photochemical aging on light absorption of atmospheric black carbon and aerosol single scattering albedo" *by* Xuezhe Xu et al.

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The authors conducted direct field measurement of size-resolved mixing state, absorption enhancement, and single scattering albedo for BC particles during photochemical aging. It could help to advance the current understanding in the large variation of BC absorption during atmospheric aging processes. I have one short comment on the uncertainty associated with the calculation of BC optical properties.

The computation of BC optical properties in this study assumed the core-shell coating structure. However, more and more observations (e.g., China et al., 2015; Wang et al., 2017) have shown various BC coating structures/morphology during aging processes,

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which are not core-shell. Further modeling studies (e.g., Scarnato et al., 2013; He et al., 2015, 2016) have indicated a large variation in BC optical properties due to the observed complex coating morphology. Thus, assuming a core-shell structure may lead to uncertainty in the estimate of BC optical properties. Besides, He et al. (2015) also proposed a BC optics-aging mechanism with three evolutional aging stages, which may be useful for the authors' analysis. I suggest that the authors include these recent studies and add some discussions on this important issue.

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