## Supplementary material for "The simulated source apportionment of light absorbing aerosols: Effects of microphysical properties of partially-coated black carbon"

Jie Luo<sup>1,2</sup>, Zhengqiang Li<sup>2,4</sup>, Jibing Qiu<sup>1,3</sup>, Ying Zhang<sup>2,4</sup>, Cheng Fan<sup>2</sup>, Li Li<sup>2</sup>, Hailing Wu<sup>2,4</sup>, Peng Zhou<sup>6</sup>, Kaitao Li<sup>2</sup>, and Qixing Zhang<sup>5</sup>

**Correspondence:** Zhengqiang Li (lizq@radi.ac.cn)

<sup>&</sup>lt;sup>1</sup>Zhejiang Lab, Hangzhou, Zhejiang 311121, China.

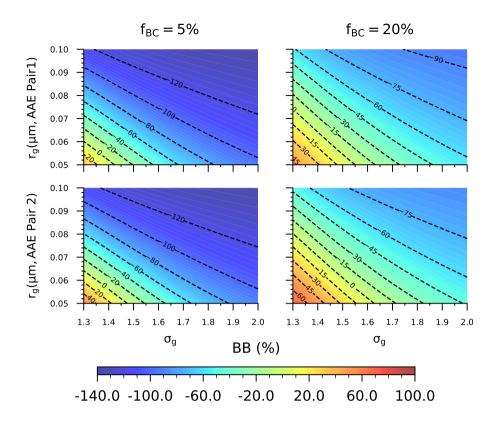
<sup>&</sup>lt;sup>2</sup>State Environment Protection Key Laboratory of Satellite Remote Sensing, Aerospace Information Research Institute, Chinese Academy of Sciences, Beijing 100101, China

<sup>&</sup>lt;sup>3</sup>Institute of Computing Technology, Chinese Academy of Sciences, Beijing 100190, China

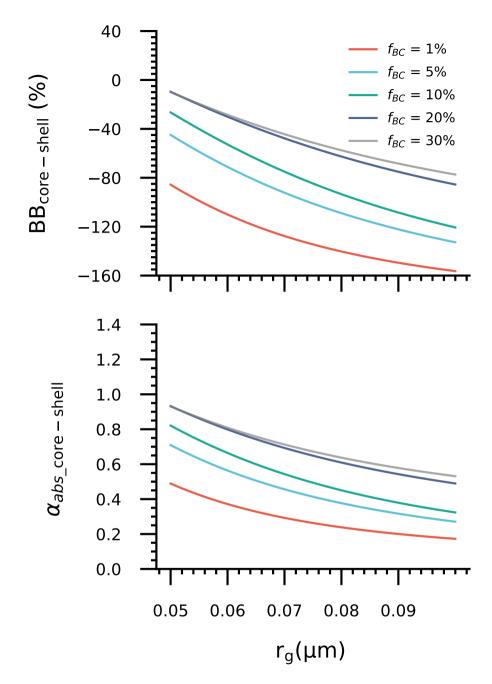
<sup>&</sup>lt;sup>4</sup>University of Chinese Academy of Sciences, Beijing 100049, China

<sup>&</sup>lt;sup>5</sup>State Key Laboratory of Fire Science, University of Science and Technology of China, Hefei, Anhui 230026, China

<sup>&</sup>lt;sup>6</sup>School of Surveying and Land Information Engineering, Henan Polytechnic University



**Figure S1.** The BB fraction (%) of spherical BC with different size distributions, where the wavelength pair is 470 - 950 nm,  $\alpha_{\rm ff} = 1$ ,  $\alpha_{\rm BB} = 2$ .



**Figure S2.** The variations of BB fraction (%) and AAE with rg for BC with different coating fractions, where the wavelength pair is 470 – 950 nm,  $\sigma_{\rm g}$  = 1.6,  $\alpha_{\rm ff}$  =1,  $\alpha_{\rm BB}$  =2.

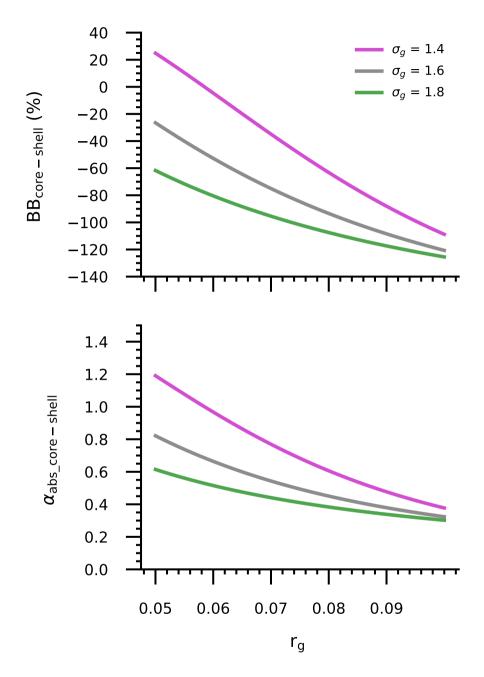


Figure S3. The variations of BB fraction (%) and AAE with  $r_g$  for BC with different  $\sigma_g$ , where the wavelength pair is 470 – 950 nm,  $f_{BC}$  = 10%,  $\alpha_{\rm ff}$  =1,  $\alpha_{\rm BB}$  =2.