

Interactive comment on “The real part of the refractive indices and effective densities for chemically segregated ambient aerosols in Guangzhou by a single particle aerosol mass spectrometer” by G. Zhang et al.

Anonymous Referee #1

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This paper describes measurements of the real part of the refractive index and density of aerosol particles having different chemical compositions using simultaneous scattering measurements with time of flight aerosol mass spectrometer measurements. Though the basic concept of the method is not new, the authors developed a measurement instrument and applied to the observation in Guangzhou, China. They compared their results with previously reported measurements and discussed characteristics of aerosols in the observed region. The paper is well written, and the content is suitable for publication in ACP. One general comment, which may be beyond the scope of this

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paper, is that the method is not sensitive to the imaginary part of refractive index as described in the paper. However, the imaginary part of refractive index or the single scattering albedo of aerosol particles is an essential parameter determining radiative characteristics. Are there any possible extensions of the single particle aerosol mass spectrometer techniques for detecting some signals related to absorption, for example, by detecting infrared radiation at the ionization with the pulsed laser?

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 34647, 2015.

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