

***Interactive comment on* “On the time-averaging of ultrafine particle number size spectra in vehicular plumes” by X. Yao et al.**

X. Yao et al.

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Zhang and Wexler Atmospheric Environment 38(38) 6643-6653, 2004 and Zhang et al., 38(38) 6655-6665, 2004 proposed the idea that gas/particle partition may explain the evolution of particle size distributions near free ways. The authors should give credits to their early investigations.

Response: The two references have been added to the revised version.

The authors should proofread the manuscript such as the last sentence of the first paragraph on page 6830.

Response: The sentence has been changed to “In Fig. 5c and 6c, in the mid-section of the tunnel, tri-modal distribution is not detected due to the overwhelmingly high concentrations of the smaller particles (~10 nm).”

The description of “a_{1n}”, “b_n” and “b_{mn}” should be introduced in the text.

Response: Done in the revised version.

Additional comments: Since ELPI was employed in tandem with EEPS in the field measurement and ELPI has similar the resolution as EEPS, the authors should compare the results from the two instruments. Did they agree with each other? Did the average of ELPI data demonstrate the similar trend as the authors found in the EEPS? If not, why?

Response: Particles <30 nm are out of the range of the ELPI. Furthermore, ELPI only reports the ultrafine particles (<100 nm) in two stages: 30-60 and 60-108 nm. In this paper (ACPD, 6, 6825-6839, 2006), the distortion occurred at particle size <50 nm (recall that there is only one stage at 30-60 nm for ELPI), this makes the comparison of the size distributions between ELPI and EEPS rather difficult if not impossible. For this reason, we have yet to find any distortion in the one-year ELPI dataset we have collected in 2002-2003. Comparison of EEPS and SMPS has been reported by Johnson et al. (2004). The reference is cited in the original version.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 6825, 2006.

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