

Interactive comment on “Amino acids in atmospheric droplets: perturbation of surface tension and critical supersaturation predicted by computer simulations” by X. Li et al.

Anonymous Referee #2

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This paper should not be accepted in ACP. My main objection is that the results show vanishingly small surface tension effects on critical supersaturations of particles large enough to act as CCN in the atmosphere. The effects are so small that they are not testable using CCN instruments as the signal would be overwhelmed by instrumental noise. Secondly, the size dependence correction used by the authors is not new as they have already introduced it in Li et al. (2010). Overall, it has been shown in recent years that surface tension effects on critical supersaturations are small even when the solutes are strong surfactants (see papers by Sorjamaa et al., Prisle et al., Topping et al.) I would suggest that the authors rewrite the paper and send it to a general physical chemistry journal as the subject of surface tension size dependence

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is one that is interesting per se, if not from the atmospheric viewpoint. Regarding the size dependence, I would note that Fig. 6 may be somewhat misleading in that the behavior of the surface tension as a function of radius might not be purely a size effect but partially a composition effect also. As shown in the above mentioned papers, the bulk mole fraction (i.e. the mole fraction in the center of the droplet) of the solute depends on droplet size, and the surface tension of course is a function of bulk mole fraction (rather than total mole fraction) of solute in the droplet.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 30919, 2011.

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