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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Negatively charged nanoparticles produced by splashing of water" *by* H. Tammet et al.

Anonymous Referee #2

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The MS is well written. It deals with an important subject of the new particle formation in atmosphere and the place in this phenomenon of air ions. The authors give a review of the previous observations (may be too short), the theory and method of their own experiment and what new have been introduced to improve the quality of measurement results interpretation. I recommend the publication of this MS in ACP.

Besides I have some comments: 1) It would be important to mention in the review part the number of experimental works of H.R. Carlon (H.R Carlon, J. Appl. Phys., 1981, 52, 311; J. Appl. Phys., 1980, 51, 171 etc.) who revealed the ion-pair concentrations in a highly humid air resulting, as reported, from the thermal dissociation of neutral water clusters.

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2) It is reported in MS that the splashing-generated balloelectric ions can be considered as singly charged water nanodroplets. However the estimation of the evaporation time was made for only neutral droplets. What is the reason?

3) It is not clear from the MS the history of the measured charged nanodroplets formation: for example, (i) the direct production of these charged nanodroplets during the laboratory bulk-water splashing and rain or (ii) at first the formation of larger and widely distributed in size charged water droplets (e.g. 10-100 nm) which then all evaporate to the observed size range.

4) It is not clear from the MS: the formation of charged water nanodroplets at rain is the result of droplet-droplet collisions by analogy with laboratory collision of the water jet onto a solid surface or the one droplet dissociates on charged fragments due to some reasons.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 16609, 2008.

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Interactive Comment