

Interactive comment on “From molecular clusters to nanoparticles: second-generation ion-mediated nucleation model” by F. Yu

Anonymous Referee #2

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I think this is an interesting article worth of publishing. After reading the thorough comments by Ned Lovejoy, which I fully agree with, I have only some minor comments.

- two references that supports the importance of H_2SO_4 in atmospheric nucleation (requested by referee 1):

The contribution of sulphuric acid to atmospheric particle formation and growth: a comparison between boundary layers in Northern and Central Europe V. Fiedler, M. Dal Maso, M. Boy, H. Aufmhoff, J. Hoffmann, T. Schuck, W. Birmili, M. Hanke, J. Uecker, F. Arnold, M. Kulmala Atmos. Chem. Phys., 5, 1773-1785, 2005

Cluster activation theory as an explanation of the linear dependence between formation rate of 3nm particles and sulphuric acid concentration M. Kulmala, K. E. J. Lehtinen,

A. Laaksonen Atmos. Chem. Phys., 6, 787-793, 2006

- Figure 10: the model results show that the concentration of 2 nm negative ions is increased. This seem to be well in agreement with the observations. What I would add to this figure is the concentration of neutral particles (in addition to negative, positive and sum over all charges)

- The author should calculate how many percentage of 3-nm particles (in case of Fig 10) are formed by the growth of 1) neutral 2) negative 3) positive clusters. What is the nucleation rate (activation rate) of e.g. neutral 1 nm particles compared to nucleation flow of charged particles (ions)?

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 3049, 2006.

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6, S1128–S1129, 2006

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