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Interactive comment on “An adsorption theory of heterogeneous nucleation of water vapour on nanoparticles” by A. Laaksonen and J. Malila

Anonymous Referee #1

Received and published: 7 October 2015

1. Based on molecular simulations carried out by this reviewer, the assumption for monolayer growth of a water cap is rather unrealistic. A liquid water droplet growing on a solid nanoparticle presents a Stranski-Krastanov growth mode. Furthermore, the diffusion on the particle surface is intense, so a spacing factor between the caps is rather meaningless because coalescence will occur very quickly. Ice formation, on the other hand, is more of a monolayer type growth with less surface diffusion, so in my opinion, the assumptions in this model presented in this study physically resemble ice growth better than water droplet formation.

2. Though the discussions of the results mention a lot about the contact angle dependence of the results, the figures do not portray any θ dependence. A figure or two may make the explanations in the discussion section easier to follow.

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3. Page 4, line 5: "Already" should be "already"

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 21883, 2015.

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