

## ***Interactive comment on “Impacts of new particle formation on aerosol cloud condensation nuclei (CCN) activity in Shanghai: case study” by C. Leng et al.***

**Anonymous Referee #1**

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General comments The paper presents some important data on aerosol size distribution and CCN, and chooses a typical example to clearly analyze the relation between new particle formation (NPF) and CCN. This study results are very interesting and helpful for people to get knowledge of the impacts of NPF events on surface CCN concentration and relevant aerosol CCN activity in Chinese urban conditions. The language and clarity of the paper should be improved in some parts. References should be improved by referring to the most original and/or latest studies. The usage of 3-10 nm aerosol particles would help to gain more information, and should be employed in the authors' future work. In addition, a slight modification is needed in the description

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of Figure 7 because of makes confused. I recommend this paper to be accepted and published in the journal of ACP after minor revisions.

Specific comments 1. The paper should add more address clearly on time scale of averaging for meteorological factors, PM<sub>2.5</sub>, CCN, BC as well as other data. 2. The authors should give more explanation for the equation (2). 3. More related references should be added and the reference style should be adjusted correctly. 4. I think there is a misprint for the description of Figure 7, please rewrite it. 5. The growth rate and formation rate calculated in this study is the “apparent particle formation and growth rate (i.e. APFR and APGR)”, however, I also see “FR” and “GR” in the text. Please specify. 6. There are some spaces for improvement in English.

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