

## ***Interactive comment on “Spatio-temporal variability and principal components of the particle number size distribution in an urban atmosphere” by F. Costabile et al.***

### **Anonymous Referee #3**

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This article presents a high quality measurements of particle number size distributions simultaneously at several sites within and around a city. The authors focused on the physical properties and the spatial-temporal variation of fine aerosol particles. The main outcome of this study is the modal structure of fine aerosol particles and the interpretation of the origin of each mode observed in the fine fraction of aerosol particles. Such a study compiles, with a clear evidence, the outcomes of previous studies that discussed the modal structure and spatial variation of aerosol particles within a small scale of a city. Such studies are very rare in literature, and this study specifically adds more understanding on the physical properties of aerosol particles and their possible sources and origins.

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The article is well written and I enjoyed reading it. However, the figures, especially Figure 5, are hard to follow. this is a challenging task for the authors to present the PCA for all sites! The same applies for Figure 3. If the authors find a more illustrative way of presenting these results, it can be more interesting to read the results.

I recommend to refer to previous studies related to the modal structure of fine aerosol particles in the urban atmosphere. this will enhance the discussion section and enforce the hypothesis presented in Figure 9.

After all, I see this article very relevant and worth for being published in ACP after enhancing the presentation quality of the results.

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 18155, 2008.

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