

# ***Interactive comment on “Water uptake of subpollen aerosol particles: hygroscopic growth, CCN activation, and liquid-liquid phase separation” by Eugene F. Mikhailov et al.***

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I would like to thank the editor for inviting me to review this manuscript. Mikhailov et al. used several methods to investigate composition, hygroscopic properties and CCN activities of three types of subpollen aerosol particles. This work is very robust and comprehensive, and thus deserves publication by ACP. This work involves lots of knowledge in aerosol microphysics and is thus quite beyond my expertise; the editors may need to ask for additional reviews. 1) In general I feel that this manuscript is very long, and the authors may consider moving some non-critical parts to Appendix or Supporting Information. Here I provide a few examples: ii) Section 2.5 (including

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Figures 1-2 and Table 1) can be substantially shorten, as HHTDMA has been described in a previous paper; some mathematical equations (and related discussion) presented in in Sections 2.6 and 2.8 can be moved to Appendix or Supporting Information. ii) p35, line 1-18: I am not sure whether information provided by this long paragraph is an important finding of this work. 2) p27, line 14-15: could you please explain why the measured kappa values decrease with water activity in the range of 0.65-0.95 before LLPS occurs? 3) p 25, line 2: please change "16" to "0.16".

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