

## ***Interactive comment on “Kinetic Controlled Glass Transition Measurement of Organic Aerosol Thin Films Using Broadband Dielectric Spectroscopy” by Yue Zhang et al.***

### **Anonymous Referee #2**

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This study developed a method to measure the kinetically-controlled glass transition temperatures using the broadband dielectric spectroscopy. Aerosol particles are deposited in the form of a thin film on an electrode using electrostatic precipitation. Glass transition temperatures of glycerol and citric acid were measured, agreeing reasonably well with available literature data. By considering the intersect of super Arrhenius and Arrhenius lines, the new method appears to provide more reliable glass transition temperatures. The effect of cooling rates on glass transition temperatures were also investigated. I found that the measurements were conducted in a highly elegant way. The manuscript is clearly written and easy to follow. In fact, I enjoyed reading this manuscript very much.

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My only major concern is that the method was validated with only two compounds. The authors plan to apply this method to measure glass transition temperatures of highly complex SOA mixtures in follow-up studies (L342). In this sense, it would be essential to test a few more compounds. There are indeed a number of organic compounds with known T<sub>g</sub>, and I wonder why the authors would not have conducted some more measurements to consolidate this new method. Is this method too time-consuming or not so easy to be applied with more compounds?

Minor comment: - L61: I suggest citing also Zobrist et al., PCCP, 13, 3514, 2011.

- L72: Rothfuss and Petters, PCCP, 2017 measured the viscosity of sucrose but not various types of SOA (or did they?).

- L282: “the” should be replaced to “that”.

- SI contains useful information (especially Figure S1 is interesting) and I suggest moving them into the main manuscript or appendix.

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