

Atmos. Meas. Tech. Discuss., referee comment RC2
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Comment on amt-2022-185

Anonymous Referee #2

Referee comment on "Characterization of a modified printed optical particle spectrometer for high-frequency and high-precision laboratory and field measurements" by Sabin Kasparoglu et al., Atmos. Meas. Tech. Discuss.,
<https://doi.org/10.5194/amt-2022-185-RC2>, 2022

General comments:

Authors have modified the commercial version of POPs by adding an external MCA card and changing the flow path, which have extended the use of POPs in laboratory studies and field measurements. For example, in tandem with DMA, and real-time processing of signals allows the high time resolution measurements of aerosols under high aerosol concentration conditions. The authors have detailed characteristics of concentration response, size response, time response of the modified one and compared them with the commercial one, and also showed an application example for phase state change detection. Overall, this is a good technique paper that facilitate the use of POPs, thus only have some minor comments.

- Suggest authors give a picture of the modified version in Fig.1.
- Suggest that Sect 2.2, 2.3 and 2.4 should be merged correspondingly with Sect 3.1, 3.2 3.3.
- The commercial POPS is attractive for its relatively low cost, lightweight, low power consumption, thus very popular in characterizing vertical distributions of aerosols such as in unmanned aerial vehicle (UAV) measurements, does the light weight and power consumption of the modified version remain low? It might be better that authors add this information in discussion part, and discuss the potential usage of modified version in for example UAV measurements.

Specific comments:

L15 "The 90/10 rise and fall...." this sentence is too technical, it is hard to follow for readers without clear clarifications, I understand clearly what authors want to deliver only when I read L120 to 124.

L182 The given typical refractive index of organics should have a larger range (Moise et al., 2015)

Moise, T., Flores, J. M., and Rudich, Y.: Optical Properties of Secondary Organic Aerosols and Their Changes by Chemical Processes, *Chemical Reviews*, 115, 4400-4439, 10.1021/cr5005259, 2015.