Comment on acp-2021-423

Anonymous Referee #1

Referee comment on "Single-particle Raman spectroscopy for studying physical and chemical processes of atmospheric particles" by Zhancong Liang et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2021-423-RC1, 2021

Liang and colleagues have written an excellent primer on Raman spectroscopy and its application to the study of atmospherically relevant single-particles. The work is comprehensive and very well written and is an excellent contribution to the literature. My. Comments below are all quite minor and can be readily corrected during a through read-through of the manuscript.

Line 13. Replace 'state' with 'states'.

Lines 49-51. References should be provided for the different approaches mentioned within this sentence and/or in the paragraph that follows.

Line 60. Is the 'smog chamber' mentioned here the same thing as the 'chamber of suspending particles' mentioned on line 50? The terminology could be tightened.

Line 84. Replace 'process' with 'processing'.

Line 101. Define the acronym HULIS

Line 114. It is unclear why the authors mention pharmaceuticals here. There are numerous non-atmospheric applications of Raman that could be mentioned. I'd suggest eliminating the parenthetical expression.

Line 143. Replaced 'coupling' with 'coupled'

Line 164. The term 'Bessel beam' has not previously been defined.

Line 203. References should be included for MDRs and WGMs.

Lines 194-205. The reference formatting in this section is not consistent with the other parts of the manuscript. Reference numbers are given instead of Author, Date format.

Line 280. Replace 'other' with 'differential' Raman characteristics.

Line 384. Add 'the' and 'equation' prior to and following 'Hendeerson-Hasselbalth (H-H)', respectively.

Line 402. Replace 'matrixes' with 'matrices'.