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# *Interactive comment on* "Development of an Automatic Linear Calibration Method for High Resolution Single Particle Mass Spectrometry: Improved Chemical Species Identification for Atmospheric Aerosols" *by* Shengqiang Zhu et al.

**Anonymous Referee #3**

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This study reports the development of an automatic linear calibration method for analyzing mass spectral data acquired with single particle mass spectrometers with mass resolution of $\sim$ 2000. The paper also shows the successful application of this method to analyzing lab generated sea spray particles and some ambient aerosols. This work is important given the broad application of single particle mass spectrometry in atmospheric studies and aerosol research and improvement of the chemical resolution of this technique is important. The scope of the work fits well within AMT and the manuscript is generally well written. I recommend acceptance for publication after fol-

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Discussion paper

lowing comments are addressed.

Line 119, change to "dried by"

Fig. S2, the caption for this figure needs to be rewritten to better present the information content.

Line 171, what does a.u. stand for? How were the thresholds selected?

The description on Step 3 given in the paragraph on pages 6 and 7 is a bit hard to follow. How exactly is the calibration conducted? Are the measured m/z bins determined from the "traditional method" mentioned in Step 0? What exactly is the "traditional method" involved? How many bins are selected for each m/z?

Give units for "measurement m/z" and "theoretical m/z" on the axis labels in all the Figures presented in this paper.

Figure 3, the symbols are hard to differentiate, consider to revise. The spectra a and b look identical, are they really represent sea spray aerosol and ambient aerosol respectively?

Figure 4, what is "error limits"? How was is calculated?

Line 250, change to "Ca2+"

Line 266, define "LR-SPAMS"?

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