

## ***Interactive comment on “Fine particle characterization in a coastal city in China: composition, sources, and impacts of industrial emissions” by Lu Lei et al.***

### **Anonymous Referee #2**

Received and published: 20 November 2019

Lei et al. presented a unique dataset on submicron aerosol composition in an area heavily influenced by industrial emissions during two seasons. They conducted PMF analysis for source apportionments using a PM<sub>2.5</sub>-ACSM. They also analyzed several plume events and concluded that the low NO<sub>x</sub>/CO, NO<sub>x</sub>/SO<sub>2</sub> and the dominance of ammonium sulfate and/or ammonium bisulfate in PM may be used as tracers for identification of emissions from steel plants. This paper is within the scope of ACP. However, there are several areas of ambiguity that should be addressed/clarified in the revision.

Major comments:

1. How did the authors exclude the influences from industrial activities from coal-fired

C1

power station, coking state, and pickling process that are also within the region?

2. Figure 7: Based on the wind rose plots, all six plumes were associated with southerly or southwesterly winds and therefore were not likely to be from the Shandong power plant. How do the authors determine the NO<sub>x</sub>/CO, NO<sub>x</sub>/SO<sub>2</sub> and ammonium sulfate concentration from the SSP?

3. The authors need to confirm that buildings and street canyons do not affect their wind speeds and direction measurements.

Minor comments:

1. Page 2, Line 13: grammatical error in “one of the most important one”
2. Page 4: Line 19: It is usually called electron ionization these days. The electrons don't actually hit the molecules, so “impact” is disfavored.
3. Page 5: Line 13: What about metals?
4. Page 4: Line 7: “while they were dominantly from the north in September and from the west in March” at night?
5. Figure 1: As a key element of a map, the scale should always be included.
6. Figure 2: The units for SO<sub>2</sub> and NO<sub>2</sub> are missing.

---

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2019-854>, 2019.

C2