

# Supplementary Materials for:

## Field Evaluation of Low-Cost Particulate Matter Sensors in Beijing

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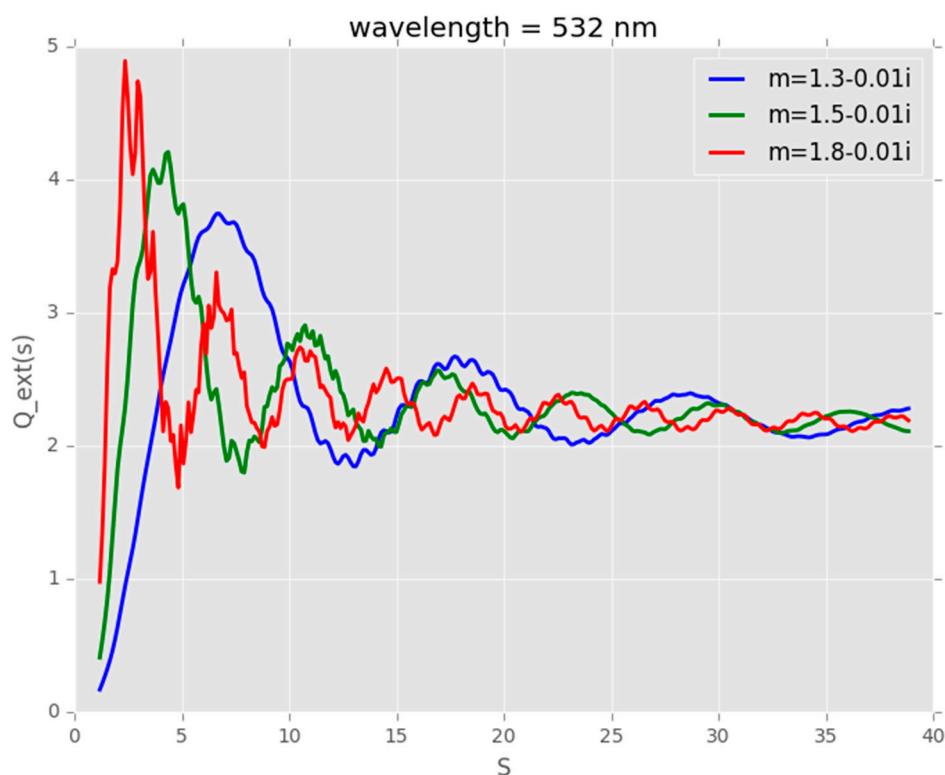
**Figure S1.** Photo of Dylos DC1700 at the Beijing (IAP, CAS) site.

**Table S1.** Record of statistical variables shown on the boxplot in Figure 6.

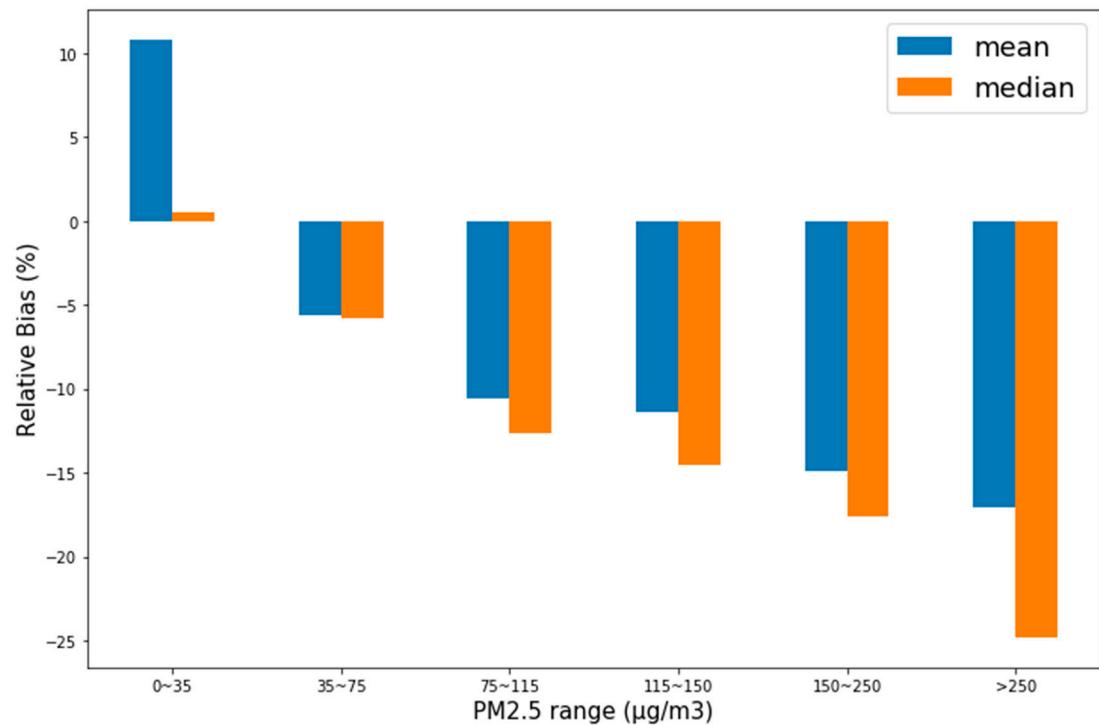
| PM2.5 range | 0~35    | 35~75  | 75~115 | 115~150 | 150~250 | >250   |
|-------------|---------|--------|--------|---------|---------|--------|
| count       | 12383   | 6764   | 2142   | 626     | 1170    | 15     |
| mean        | 10.84   | -5.64  | -10.61 | -11.38  | -14.88  | -17.09 |
| std         | 89.45   | 30.30  | 27.63  | 25.36   | 22.02   | 17.96  |
| min         | -100.00 | -98.33 | -88.81 | -88.40  | -97.25  | -37.96 |
| 25%         | -40.13  | -22.68 | -31.42 | -26.57  | -29.18  | -26.00 |
| 50%         | 0.50    | -5.79  | -12.60 | -14.54  | -17.61  | -24.82 |
| 75%         | 38.00   | 11.10  | 6.34   | 4.62    | -1.23   | -12.25 |
| max         | 1999.00 | 199.54 | 118.75 | 82.43   | 65.34   | 21.86  |

std: standard deviation;

25%,50%,75%: 25th ,50th and 75th percentile values (the interquartile range)



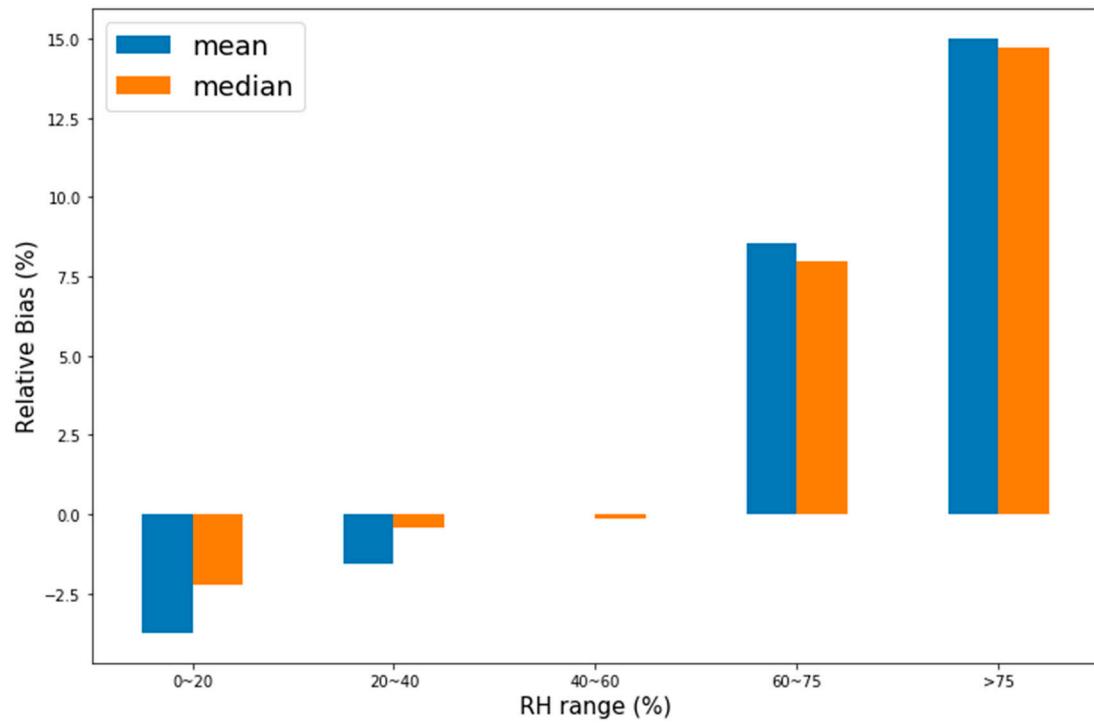
**Figure S2.** Aerosol extinction efficiency factor calculated by Mie theory. The x axis is scale factor equal to  $2\pi r/\lambda$ ,  $m$  is complex refractive index. The y axis is aerosol extinction efficiency factor.



**Figure S3.** Histogram of average relative bias (mean) and median relative bias (median) of PMSA003 sensors under different concentrations.

**Table S2.** Record of statistical variables shown on the boxplot in Figure 8.

| RH range | 0~20   | 20~40  | 40~60  | 60~75  | >75    |
|----------|--------|--------|--------|--------|--------|
| count    | 4239   | 10229  | 3645   | 1332   | 258    |
| mean     | -3.74  | -1.58  | 0.00   | 8.55   | 15.02  |
| std      | 9.54   | 11.23  | 14.08  | 15.41  | 17.68  |
| min      | -56.30 | -68.00 | -63.87 | -33.85 | -24.93 |
| 25%      | -6.68  | -6.49  | -7.54  | -0.90  | 2.17   |
| 50%      | -2.23  | -0.42  | -0.15  | 7.96   | 14.71  |
| 75%      | 1.20   | 4.27   | 7.19   | 16.59  | 26.42  |
| max      | 35.23  | 195.04 | 299.64 | 74.51  | 59.51  |



**Figure S4.** Histogram of average relative bias (mean) and median relative bias (median) of PMSA003 sensors under different relative humidity (RH) ranges.