

CURRICULUM VITAE

Wangshu Tan | *Ph.D.*

Post-Doctoral Researcher

School of Optics and Photonics,
Beijing Institute of Technology, Beijing 100081, China

Email: tanws@bit.edu.cn

Phone: +86 13811703616

Website: <https://tanwangshu.com>

Last updated: 2021-11-04

Work Experience

2020 – present

Post-Doctoral Researcher

School of Optics and Photonics, Beijing Institute of Technology

Cooperation Advisor: Siying Chen

Education Background

2015 – 2020

Ph.D. in Atmospheric Physics and Atmospheric Environment

Minor: Atmospheric Radiation and Remote Sensing

Department of Atmospheric and Oceanic Sciences, Peking University

Research Advisor: Chengcai Li

Dissertation title: *Research on the retrieval methods of aerosol optical and microphysical properties based on multiwavelength polarization Raman-Mie lidar*

2011 – 2015

B.S. in Atmospheric Sciences

Department of Atmospheric and Oceanic Sciences, Peking University

Research Interests

Lidar remote sensing of atmosphere

Aerosol optical and radiative properties

Aerosol-cloud-radiation interactions

Remote sensing and in situ observations of aerosols and clouds

Microphysics processes in clouds

Global climate change

Academic Skills

Programing

Python, Fortran, C, Linux System, Machine Learning

Models

BHMIE, BHCOAT, MSTM, T-MATRIX, SBDART, MONORTM, RRTM,

ISORROPIA-II, MEGAN

Instruments

MPL, MWRL, Sun Photometer (CE-318), DMA, CPC, APS, AE33, AE51, MAAP,

SP2, PASS-3, TEOM, CPMA, Humidified Nephelometer System, Microwave Wind Profiler,

Cloud Radar

Peer-Reviewed Publications

First author or corresponding author publications:

- [1] Zhang, Y.; Chen, S.; **Tan, W.***; Chen, S.; Chen, H.; Guo, P.; Sun, Z.; Hu, R.; Xu, Q.; Zhang, M.; Hao, W.; Bu, Z., Retrieval of water cloud optical and microphysical properties from combined multiwavelength lidar and radar data. *Remote Sensing* **2021**, 13, (21), 4396, 10.3390/rs13214396.
- [2] **Tan, W.**; Yu, Y.; Li, C.; Li, J.; Kang, L.; Dong H.; Zeng L.; Zhu, T., Profiling aerosol liquid water content using a polarization lidar. *Environmental Science & Technology* **2020**, 54, (6), 3129-3137, 10.1021/acs.est.9b07502.

- [3] **Tan, W.**; Li, C.; Liu, Y.; Meng, X.; Wu, Z.; Kang, L.; Zhu, T., Potential of polarization lidar to profile urban aerosol phase state during haze episodes. *Environmental Science & Technology Letters* **2020**, 7, (2), 54-59, 10.1021/acs.estlett.9b00695.
- [4] **Tan, W.**; Zhao, G.; Yu, Y.; Li, C.; Li, J.; Kang, L.; Zhu, T.; Zhao, C., Method to retrieve cloud condensation nuclei number concentrations using lidar measurements. *Atmospheric Measurement Techniques* **2019**, 12, (7), 3825-3839, 10.5194/amt-12-3825-2019.
- Co-author publications:
- [5] Ren, J.; **Tan, W.**; Tian, X.; Wu, Z.; Li, C.; Li, J.; Zhao, C.; Liu, D.; Kang, L.; Zhu, T., Retrieval of aerosol liquid water content from high spectral resolution lidar. *Science of the Total Environment* **2021**, 799, 10.1016/j.scitotenv.2021.149423.
- [6] Chen, S.; Cao, R.; Xie, Y.; Zhang, Y.; **Tan, W.**; Chen, H.; Guo, P.; Zhao, P., Study of the seasonal variation in Aeolus wind product performance over China using ERA5 and radiosonde data. *Atmospheric Chemistry and Physics* **2021**, 21, (15), 11489-11504, 10.5194/acp-21-11489-2021.
- [7] Qiu, J.; **Tan, W.**; Zhao, G.; Yu, Y.; Zhao, C., New correction method for the scattering coefficient measurements of a three-wavelength nephelometer. *Atmospheric Measurement Techniques* **2021**, 14, (7), 4879-4891, 10.5194/amt-14-4879-2021.
- [8] Zhao, W.; **Tan, W.**; Zhao, G.; Shen, C.; Yu, Y.; Zhao, C., Determination of equivalent black carbon mass concentration from aerosol light absorption using variable mass absorption cross section. *Atmospheric Measurement Techniques* **2021**, 14, (2), 1319-1331, 10.5194/amt-14-1319-2021.
- [9] Chang, L.; Li, J.; Chu, Y.; Dong, Y.; **Tan, W.**; Xu, X.; Ren, J.; Tian, X.; Li, C.; Liu, Z., et al., Variability of surface aerosol properties at an urban site in Beijing based on two years of in-situ measurements. *Atmospheric Research* **2021**, 256, 10.1016/j.atmosres.2021.105562.
- [10] Xu, X.; Jiang, Z.; Li, J.; Chu, Y.; **Tan, W.**; Li, C., Impacts of meteorology and emission control on the abnormally low particulate matter concentration observed during the winter of 2017. *Atmospheric Environment* **2020**, 255, 10.1016/j.atmosenv.2020.117377.
- [11] Su, T.; Li, Z.; Li, C.; Li, J.; Han, W.; Shen, C.; **Tan, W.**; Wei, J.; Guo, J., The significant impact of aerosols vertical structure on lower- atmosphere stability and its critical role

in aerosol-PBL interaction. *Atmospheric Chemistry and Physics* **2020**, 20, (6), 3713-3724, 10.5194/amt-12-3825-2019.

- [12] Chu, Y.; Li, J.; Li, C.; **Tan, W.**; Su, T.; Li, J., Seasonal and diurnal variability of planetary boundary layer height in Beijing: Intercomparison between MPL and WRF results. *Atmospheric Research* **2019**, 227, 1-13, 10.1016/j.atmosres.2019.04.017.
- [13] Li, J.; Li, C.; Guo, J.; Li, J.; **Tan, W.**; Kang, L.; Chen, D.; Song, T.; Liu, L., Retrieval of aerosol profiles by Raman lidar with dynamic determination of the lidar equation reference height. *Atmospheric Environment* **2019**, 199, 252-259, 10.1016/j.atmosenv.2018.11.048.
- [14] Bian, Y.; Zhao, C.; Xu, W.; Kuang, Y.; Tao, J.; Wei, W.; Ma, N.; Zhao, G.; Lian, S.; **Tan, W.**; Barnes, J. E., A novel method to retrieve the nocturnal boundary layer structure based on CCD laser aerosol detection system measurements. *Remote Sensing of Environment* **2018**, 211, 38-47, 10.1016/j.rse.2018.04.007.
- [15] Zhao, G.; Zhao, C.; Kuang, Y.; Tao, J.; **Tan, W.**; Bian, Y.; Li, J.; Li, C., Impact of aerosol hygroscopic growth on retrieving aerosol extinction coefficient profiles from elastic-backscatter lidar signals. *Atmospheric Chemistry and Physics* **2017**, 17, (19), 12133-12143, 10.5194/acp-17-12133-2017.

Manuscripts Submitted

- [1] Chen, H.; Sun, Y.; Wang, L.; Deng, Y.; Chen, S.; Guo, P.; **Tan, W.**; Zhang, Y.; Bu, Z., Simulation and misalignment analysis of the gain ratio of a Raman–Mie lidar. Submitted to *Applied Optics*, **in review**.
- [2] Guo, P.; Deng, Y.; Wang, L.; Chen, S.; **Tan, W.**; Zhang, Y.; Sun, Y.; Zhang, J.; Chen, H.; Yang, W., An optical spectrometer of a combined unfolded Czerny–Turner configuration using a common linear-array detector. Submitted to *Applied Optics*, **in review**.

Selected Conference Presentations

Method to Retrieve Cloud Condensation Nuclei Number Concentrations Using Multiwavelength

Raman Lidar, **10th International Aerosol Conference**, St. Louis, MO, USA,
September 2018.

Publications in Chinese

- [1] Wang, Y.; Li, C.; Chu, Y.; **Tan, W.**; Ren, J., Estimating the daily atmospheric maximum mixing height with 1-second sounding data over Beijing Area. *Acta Scientiarum Naturalium Universitatis Pekinensis* **2020**, *56*, (2), 223-230, 10.13209/j.0479-8023.2019.129.
- [2] Song, J.; **Tan, W.**; Li, C.; Yu, Y.; Li, J., Identification of supercooled water clouds by using micro pulse lidar. *Acta Scientiarum Naturalium Universitatis Pekinensis* **2018**, *54*, (5), 961-969, 10.13209/j.0479-8023.2018.022.
- [3] Wang, C.; Chu, Y.; **Tan, W.**; He, Q.; Li, C., Characteristics of atmospheric mixing layer height over the Tibetan Plateau with lidar and radiosonde data. *Chinese Journal of Atmospheric Sciences (in Chinese)* **2018**, *42*, (5), 1133-1145, 10.3878/j.issn.1006-9895.1711.17218.
- [4] Wang, C.; Li, C.; He, Q.; **Tan, W.**; Chu, Y.; Li, J., An assessment with lidar on the applicability of radiosonde data in retrieving the mixing height in Tibetan Plateau. *Acta Scientiarum Naturalium Universitatis Pekinensis* **2017**, *53*, (3), 579-587, 10.13209/j.0479-8023.2016.102.
- [5] Wu, M.; **Tan, W.**; Li, C., Application of satellite remote sensing on assessment of air quality station positioning. *Environmental Science and Management* **2016**, *41*, (9), 125-129.