

Lu Tan

PhD candidate in Atmospheric Chemistry
University of Montana, Department of Chemistry and Biochemistry
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Research interests

Air quality and atmospheric chemistry; volatile organic compounds (VOCs); biomass burning emission; source attribution of air toxics; ground and mobile observations; proton-transfer-reaction time-of-flight mass spectrometry (PTR-ToF-MS)

Education

PhD candidate, **Analytical and Environmental Chemistry**, University of Montana expected 2027
B.S. **Chemical Engineering and Technology**, Changsha University of Science and Technology 2022

Skills

- Programming: R | Python
- Engineering: CAD | Aspen
- Analytical: atmospheric composition monitoring | data acquisition | datalogger programing | proton transfer reaction-mass spectrometry (PTR-MS) | GC-MS | PAXs

Other skills

- Science: data processing and visualization | statistical analysis
- Interpersonal communication: writing | public speaking | teamwork | project management | version control

Research Experiences

University of Montana

Missoula, MT

PhD candidate, Department of Chemistry and Biochemistry

Teaching and Graduate Research Assistant with Lu Hu: Sep. 2022– present

- Emission of VOCs and particulate matter from western US prescribed fires via mobile van observations (SMART-FIRE)
- Improving the characterization of Proton-Transfer-Reaction Mass Spectrometry for better identifying and quantifying VCP VOCs
- Long-term analysis of ambient VOC measurements in Missoula, Montana
- Data analysis and calibration of chamber VOC measurements for secondary organic aerosol formation studies (SCENTS project)
- Urban air quality mobile profiling during the Salt Lake City Summer Ozone Study (SLC-SOS)
- FORSE project
- Analyzing and calibrating ozone, CO, NO_x, Black carbon, and particulate matter data.
- Proficient in PTR-ToF-MS, GC-MS, air pollutants, and meteorological measurement instrumentation.

Publications

In preparation

- **Tan, L.**, Ketcherside, D. T., Hu, L.: Measuring benzyl alcohol, carbitol, i-propyl alcohol, linalool, and α -terpineol by PTR-ToF-MS, in prep.
- **Tan, L.**, Permar, W., Knudsen, J., Cope, E., Jin, L., Tepsa Jacob, V., Hoff, V., Yokelson, R. J., Seielstad, C., Queen, L., Hu, L.: Characterization of emissions from prescribed fires in Western U.S. forests with a mobile laboratory measurement, in prep.

In Review

- Jin, L., **Tan, L.**, Ketcherside, D. T., Selimovic, V., Nauman, K., Yokelson, R. J., and Hu, L.: Characterizing emissions, chemistry, and health impacts of aged wildfire smoke in a western US city, EGUsphere [preprint], <https://doi.org/10.5194/egusphere-2026-114>, 2026.

Accepted

- Cope, E., Ketcherside, D., Jin, L., **Tan, L.**, Mansfield, M., Jones, C., Lyman, S., Jaffe, D., and Hu, L., Sources of atmospheric volatile organic compounds during the Salt Lake regional Smoke, Ozone and Aerosol Study (SAMOZA) 2022, *Journal of Geophysical Research: Atmospheres*, 129, e2024JD041640.
- Melles, T., Lawrence, A., Ksaibati, A., Zang, C., Dearden, A., Coggon, M., Richard, K., Ketcherside, D., **Tan, L.**, Stockwell, C., Luo, H., Akbarzadeh, M., Xu, L., Middlebrook, A., Piasecki, A., Garofalo, L., Warneke, C., Hu, L., Farmer, D., Jathar, S., Willis, M., Impact of molecular structure on the OH-initiated oxidation mechanism of 2-(2-ethoxyethoxy)ethanol and resulting aerosol formation, *ACS Earth and Space Chemistry*.

Professional activity and outreach

- Journal reviewer: *Atmospheric Pollution Research* (2025), *Fire Technology* (2026)

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- Teaching Assistant / Laboratory Instructor: Led and taught lab sections for CHEM 142 and CHEM 144, University of Montana, 2022 Fall and 2023 Spring, ~120 students in total, workload: 15 hours/week
 - K-12 education on air pollution and wildfire (2024, 2025)

Presentations

- Presents an oral talk "A32B-06 Measuring New Volatile Chemical Product (VCP) Species by Proton-Transfer-Reaction Time-of-Flight Mass Spectrometry" at the 2023 AGU Fall Meeting in San Francisco, CA on Dec 11-15, 2023.
- Presents an oral talk "Quantifying volatile organic compounds from volatile chemical products using photon transfer reaction mass spectrometry" at The 77th ACS Northwest Regional Meeting (NORM) in Bozeman, MT on June 28-30, 2023.
- Presents a poster "Wildfire emission and impacts in Missoula, Montana during 2021 wildfire season" at The 11th International GEOS-Chem Meeting (IGC11) in St. Louis, MO on June 11-14, 2024.
- Presents a poster "Assessing emissions and air quality impacts of prescribed fires" at SMART FIRES All Hands Meeting in Missoula, MT on Sep 16-17, 2024.
- Presents an oral talk "Assessing emissions and air quality impacts of prescribed fires" at 2024 The 5th Rocky Mountain Wildfire Smoke Symposium in Missoula, MT on Oct 17-18, 2024.
- Presents an oral talk "Characterization of Emissions and Fireline Exposures From Prescribed Fires With a Mobile Laboratory Measurement" at 2025 Air Quality Measurement Methods and Technology in Aurora, CO on Apr 23-25, 2025.
- Presents a poster "Characterization of emissions from prescribed fires in Western U.S. forests with a mobile laboratory measurement" at SMART FIRES All Hands Meeting in Bozeman, MT on Sep 08-09, 2025.
- Presents a poster "Fire-line Characterization of Prescribed Fire Emissions with Mobile Laboratory Observations" at the 2025 AGU Fall Meeting in New Orleans.

Teaching experience:**University of Montana**

Teaching Assistant, Department of Chemistry and Biochemistry

Missoula, MT

Sep. 2022– May. 2023

- Teach the CHMY 142 lab course materials and help students finish basic chemistry lab work and grade their lab reports.

Awards and community involvement:

- Fred Shafizadeh Memorial Scholarship (\$3,350), University of Montana, 2025)
- Graduate Doctoral Fellowship (\$1,000), University of Montana, 2024
- Chemistry Scholarship Award (\$1,000), University of Montana, 2022, 2023, 2024
- University-level Second-Class Scholarship (Oct. 2021)
- Got Third Prize of Hunan Chemical Design Competition (Jul. 2021)
- Got University-level First-Class Scholarship (Oct. 2020)
- The First Prize of University Level of Lee Kum Kee Innovation Contest (Jun 2020)
- The Second Prize of Academy returning to high school to publicize the national subsidy policy for poor students in the summer vacation practice (Sep. 2019)
- The First Prize in China College Students' Entrepreneurship Competition & Internet plus (School Level) (Aug 2020)