Announcement of a topic for:

Seminar Research ☐
Seminar Methods ☐
Master Theses **x** (please mark one or more)

Thema Datum	Microphysical properties of refractory Black carbon aerosols at an urban background station TROPOS 10.10.2025
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Kurz- beschreibung:	Black carbon (BC), is an important component of atmospheric aerosols resulting from incomplete combustion. BC particles can vary widely due to differences in their emission sources, atmospheric aging, and transport processes. BC can interact with other aerosols during its formation and transport, leading to complex particle mixtures. This influences its optical properties, atmospheric lifetime, impact on radiative forcing and climate. The research goal of the proposed master's thesis is to investigate the microphysical properties and mixing state of refractory BC containing particles at the urban background site of TROPOS. The mass concentration, size distribution, and mixing state of BC will be measured by a Single Particle Soot Photometer (SP2, Droplet Measurement Technologies, Longmont, CO, US). In addition, additional state of the art aerosol instrumentation at TROPOS will also be used in this study.
Literatur:	1. Yang et al., Microphysical properties of refractory black carbon aerosols for different air masses at a central European background site, Atmospheric Chemistry and Physics, 2025. doi.org/10.5194/acp-25-8637-2025. 2. Schwarz et al., Measurement of the mixing state, mass, and optical size of individual black carbon particles in urban and biomass burning emissions, Geophys. Res. Lett., 35, L13810, https://doi.org/10.1029/2008gl033968, 2008.