

Session 5

Emerging air and water contaminants and infectious agents Thursday, April 8 at 1 p.m.

COVID-19 risk in UNC dorms using air exchange rates and Wells-Riley Risk calculations

Daniel Esteban Amparo (MS, 2022) – Advisor: Barbara Turpin

Abstract: Household dust, window films, air, AC condensation, and HVAC particles will be sampled and analyzed via combustion ion chromatography to measure total organic fluorine.

About Daniel: Scholarly expertise: Applied Environmental Chemistry.

Fun fact: I have an addiction to playing volleyball.

Future Interests: study PFAS chemistry with the Office of Research and Development at EPA.

The importance of organic hydroperoxides in ambient aerosol

Rebecca Rice (PhD, 2025) – Advisor: Avram Gold and Zhenfa Zhang

Abstract: Climate change boosts isoprene emissions. Isoprene-derived SOA, i.e., hydroperoxides, contribute to atmospheric PM_{2.5} under low-NO_x conditions. By investigating synthetic routes for hydroperoxides we aim to determine composition, mechanisms of formation and distribution.

About Rebecca: Rebecca Rice has a B.S. in Chemistry from the University of New Orleans and a M.Sc. in Global Health from Duke. One fun fact: I took one semester of glassblowing in college. My future interests include working with scientists and policymakers to make informed science based decisions that benefit global health.

Role of C₅H₁₀O₃ Isobars in Formation and Analysis of Isoprene Derived SOA

Molly Frauenheim (PhD, 2025) – Advisor: Avram Gold, Jason Surratt, and Zhenfa Zhang

Abstract: GC/ESI-MS analysis of isoprene derived secondary organic aerosol yields three C₅H₁₀O₃ isobars (“C₅ alkene triols”), which contribute substantially to isoprene marker mass, yet structures and origins were previously unconfirmed. Synthetic routes have been developed for three plausible C₅H₁₀O₃ isobars, which can be used to resolve structures and investigate potential artifact formation during conventional thermal GC/ESI-MS analysis.

About Molly: I am a first year PhD student studying a combination of synthetic and analytical atmospheric chemistry. In the future, I hope to work in the public sector generally on the intersection of environmental chemistry and public health. One fun fact about me is that I am a twin!